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ABSTRACT

The purpose of the three-year Cooperative Language Development Project was to examine the efficacy of an oral language development program and an experimental reading program in improving the academic achievement, language development, intellectual functioning, and creative thinking of disadvantaged children in primary grades. The experimental treatments were: (1) an oral language program consisting of experimental versions of the Peabody Language Development Kits, and (2) an experimental reading (Initial Teaching Alphabet) approach. In contrast to the experimental groups, a control group used a conventional basal reading program. The effectiveness of the experimental programs was measured by various standardized tests, such as the Peabody Language Production Inventory and the Stanford-Binet Intelligence Scale. After three years of intervention, the two experimental approaches in combination appeared to be most effective treatment for improving the intellectual and language development as well as the school achievement and creative thinking of disadvantaged children. It appears that exposure to the experimental reading and language development programs in this study had a number of beneficial effects. [For a report of the Project "after two years," see ED 026 125.] (Author/JW)

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IMRID Behavioral Science Monograph No. 9

THE EFFECTIVENESS OF THE PEABODY LANGUAGE DEVELOPMENT KITS AND THE INITIAL TEACHING ALPHABET WITH DISADVANTAGED CHILDREN IN THE PRIMARY GRADES: A REPORT AFTER THE THIRD GRADE OF THE COOPERATIVE LANGUAGE DEVELOPMENT PROJECT

by

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Institute on Mental Retardation and Intellectual Development
George Peabody College for Teachers
Nashville, Tennessee
1968

PREFACE

The Cooperative Language Development Project was coordinated by the Institute on Mental Retardation and Intellectual Development (IMRID) of Peabody College. This project was designed to provide a modified language arts program for a substantial number of disadvantaged children in the primary grades, and to evaluate the effectiveness of the program upon the academic, intellectual, and linguistic growth of the participants. These modifications included the Peabody Language Development Kits (PLDK) and the Initial Teaching Alphabet (ITA). For certain experimental groups, the use of the PLDK was continued on an experimental basis through the third grade. The experimental reading program was also continued through the third grade, although virtually all of the children had made the transition from ITA into traditional orthography by the middle of the second year. The purpose of this monograph is to report the results of the Cooperative Language Development Project after three years of intervention. The final phase of the project will involve a follow-up evaluation of the subjects toward the end of the fourth grade.

The project was carried out in cooperation with the Nashville-Davidson County Metropolitan Schools and the Nashville Educational Improvement Project. Financial support for the service-oriented aspects of the project was provided by the Nashville Educational Improvement Project (NEIP) from Ford Foundation grant funds, while the costs of the research aspects of this project were provided to IMRID by funds from the National Institute of Child Health and Human Development under Grant No. HD-973.

A great number of people have contributed to the success of this project. The authors are indebted to Mrs. Carrie Denny, formerly Supervisor in the Nashville-Davidson County Public Schools and Associate Director of NEIP, for her assistance in the project. Special acknowledgement is due M. D. Neely, Metro Coordinator of Special Projects, who was the main force in the school system behind the conception and execution of this experiment. Mr. N. A. Crippens also deserves special recognition. As Director of the Nashville Educational Improvement Project, he was responsible for providing both professional and financial support.

We particularly wish to acknowledge the contribution of the large number of persons involved directly in the execution of the project. Mrs. Margaret Pino served first as a team teacher in the experiment, and later as the supervisor of all the teachers who used the oral language stimulation intervention. The teachers and principals involved in the project also deserve a great deal of credit for the success of the project. A special note should be made of the contribution of teachers and principals in control schools who endured many of the

inconveniences of project participation without the stimulation of an experimental program. In addition to regular school personnel, recognition is due the special personnel involved in the project. We appreciate the efforts of the visiting teachers and community volunteers who added so much to the PLDK program. Special recognition is due the examiners, without whom the important evaluation data on the project could not have been obtained. The names of other persons who were instrumental to the successful completion of the project appear below. We apologize if we have inadvertently omitted names from the list.

Experimental teachers: Cornelia Adkins, Francena Allen, Essie T. Battle, Zinnie Blaeuer, Gladys Bond, Patricia Campbell, Eudine Cannon, Ann Cato, Margaret Chapman, Linda Clement, Mrs. R. Cleveland, Judith Comisar, Mary Craighead, Wilba Cullens, Clara Donald, Ann Dunn, Mary Etheridge, Celestine Fludd, Icy Mae Green, Rexye Greenfield, Marcia Gregory, Morena Harrison, Jeannie Holden, Edith Jordan, Roby Little, Maurine Loggins, Mrs. M. B. Meadors Lorena Mitchell, Jewel Moore, Margaret Murray, Elizabeth Norris, Otie B. Officer, Novella Page, Mary Parrish, Marjorie Peebles, Addie P. Pepper, Mrs. M. G. Reid, Marie Schmutz, Charlotte Sellers, Elizabeth Taylor, Evelyn Thompson, Teddy Jo Throneberry, Ann Vance, Peggy Wilson and Mary Witherspoon.

Itinerant teachers and visiting teachers in team approach: Jeneen Kean, Pauline Moore, Margaret Pino, Barbara Semrau, and Beverly Shaw.

Community volunteers: Mrs. Robert Eisenstein, Mrs. Joel Glassman, Mrs. L. Klein, and Mrs. Shepard Schwartz.

School principals: Clarence C. Austin, Leslie W. Beasley, Harold Cauthen, Carolyn Embry, Glenn Hale, Carrie P. Jones, Henry McClarion, F. B. Shockley, Franklin Taylor, Morris E. Tipton.

Research Assistants: Betty Banks, Karen Copeland, Janice Chumbley, Kathy Friedman, Juliet Griffin, Virginia Johnson, and Kenneth Jost.

We are hopeful that the results of this project will provide new information to educators of sufficient importance to warrant the extensive efforts of all these people.

Lloyd M. Dunn
Prayot Pochanart
H. Philip Pfost
Robert H. Bruininks

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CHAPTER I

INTRODUCTION

The vast majority of boys and girls from inner city slums encounter inordinate barriers in achieving scholastic success. The problems are acute, particularly for such children in the South. These pupils--especially Negro youth--bring to the schools a restricted and non-standard form of oral language which is often incompatible with existing instructional procedures. Generally, they neither hear nor articulate the ending speech sounds. In addition, many of their teachers have been exposed to the same culture. Thus, they may have similar difficulties in hearing and articulating the approximately forty sounds of Standard English. Therefore, it is not surprising that these children demonstrate progressive academic retardation in school (Deutsch, 1963). To correct this, it appears that improved and more appropriate procedures are needed to teach these children oral and written language.

In response to this need, a study of two new approaches for teaching language development to disadvantaged children was undertaken through the Cooperative Language Development Project (CLDP). The study included a treatment period of the first three grades of school, with provision for a one-year, follow-up evaluation. This monograph reports on the project after the three-year treatment. Dunn and Mueller (1966) reported progress after one year, while Dunn, Pochanart, and Pfost (1967) reported the results following the second year of the treatment.

Purpose

The primary purpose of the CLDP was to examine the efficacy of an oral language development program and/or an experimental reading approach in improving the academic achievement, language development, and intellectual development of disadvantaged children in the primary grades. The oral language program consisted of experimental versions of the Peabody Language Development Kits (Dunn & Smith, 1965; 1966; 1967). Level #1, Level #2, and Level #3 were used during the first, second, and third years, respectively (i.e., 1964-65; 1965-66; 1966-67). The experimental reading program was the Early-to-Read Initial Teaching Alphabet (i/t/a) program (Mazurkiewicz & Tanyzer, 1963). To make the transition into traditional orthography (TO), the children used the Basic Reading series by McCracken and Walcutt (1963). In contrast to the experimental groups, the control group used the Houghton Mifflin basal reading program (McKee, Harrison, McCowen, & Lehr, 1963) in traditional orthography and received no oral language stimulation.

A secondary purpose of this study involved an evaluation of the effectiveness of the PLDK lessons taught to the total classroom and to smaller groups by different types of instructional personnel (Dunn & Mueller, 1966; Dunn, Pochanart, & Pfost, 1967). The PLDK lessons were taught by: 1) the regular teachers alone, 2) a team teaching approach, 3) itinerant teachers, and 4) a community volunteer assistant program. Furthermore, each type of instructional personnel taught the PLDK lessons both to the entire classroom, and to smaller groups of children consisting of one-half the class at a time. An enumeration of all treatment groups for each year of the study appears below. A more complete explication of the research design will be found in Chapters III and IV.

Research Design

During the school year of 1964-65, ten experimental groups and a control group were established. These groups were constituted so as to investigate the effectiveness of reading in ITA, reading in ITA in combination with PLDK, and reading in TO with PLDK. Among the TO groups, the PLDK program was taught under a variety of personnel arrangements. The experimental population consisted of 26 classes in eight schools. Control children were drawn from classrooms in six different schools. The experimental groups were:

1. Reading in ITA, without PLDK.[1]
2. Reading in ITA, plus PLDK taught by the teacher to the total class.
3. Reading in TO, plus PLDK taught by the teacher to the total class.
4. Reading in TO, plus PLDK taught by the teacher to the class in two groups (first the fast and then the slow half of the class).
5. Reading in TO, plus PLDK taught by a team teaching approach (regular teacher and visiting teacher) to the total class.
6. Reading in TO, plus PLDK taught by a team teaching approach to the class in two groups.
7. Reading in TO, plus PLDK taught by an itinerant teacher to the total class.
8. Reading in TO, plus PLDK taught by an itinerant teacher to the class in two groups.
9. Reading in TO, plus PLDK taught by the regular teacher and a community volunteer to the total class.
10. Reading in TO, plus PLDK taught by the regular teacher and a community volunteer to the class in two groups.

In the second year (1965-66), one-half of the classes which received PLDK, Level #1, received a second year of oral language stimulation using the experimental edition of PLDK, Level #2. This division created the following additional groups:

11. Reading in ITA, plus two years of PLDK taught by the teacher to the total class.
12. Reading in TO, plus two years of PLDK taught by the teacher to the total class.

---

[1] In 1964-65, all PLDK groups received Level #1; in 1965-66 Level #2; and in 1966-67, Level #3.

13. Reading in TO, plus two years of PLDK taught by the teacher to the class in two groups.
14. Reading in TO, plus two years of PLDK taught by a team teaching approach to the total class.
15. Reading in TO, plus two years of PLDK taught by a team teaching approach to the class in two groups.
16. Reading in TO, plus two years of PLDK taught by the regular teacher and a cummunity volunteer to the total class.
17. Reading in TO, plus two years of PLDK taught by the regular teacher and a community volunteer to the class in two groups.

During the final year, one-half of the classes in groups 11, 12, 14, and 16 received Level #3 of the PLDK. This division created the following groups:

18. Reading in ITA, plus three years of PLDK taught by the teacher to the total class.
19. Reading in TO, plus three years of PLDK taught by the teacher to the total class.
20. Reading in TO, plus three years of PLDK taught by a team teaching approach (regular teacher and a visiting teacher).

Therefore, in the third year there were children who had ITA alone, ITA plus PLDK for one year, ITA plus PLDK for two years, ITA plus PLDK for three years, and reading in TO plus PLDK--with the various teaching combinations for one, two, and three years.

Complete discussions of the results of previous analyses, using all or part of the above groups, appear in monographs by Dunn and Mueller (1966) and Dunn et al. (1967). This monograph is restricted to a discussion of the results of educational interventions involving: 1) ITA and/or PLDK taught by the regular teacher (see Chapter III), and 2) a comparison of the effectiveness of using team versus regular teaching approaches to present the PLDK lessions (see Chapter IV).

Hypotheses

In comparison to the control children, the following predictions were made.

1. The use of ITA alone in beginning reading instruction will lead to superior reading performance.
2. The use of PLDK alone will enhance the development of verbal intelligence, oral language, creative thinking, and school achievement.
3. The use of ITA plus PLDK will be especially effective in fostering verbal intelligence, language development, creative thinking, and school achievement.
4. The use of PLDK for three years will be more effective than using it for one or two years.

(The findings concerning these predictions will be found in Chapter III.)

For the second aspect of the study, it was predicted that there would be no difference in the relative effectiveness of using different instructional personnel to teach the PLDK lessons upon the intellectual development, oral language development, creative thinking, and academic achievement of disadvantaged primary grade children. (Findings on this aspect of the study are presented in Chapter IV.)

Analysis of Results

Analysis of variance was used to compare treatments among the groups, with t tests employed to contrast differences between sub-groups. Since this was an exploratory educational intervention study, the .90 level of confidence was used throughout.

Background

Experience and research dealing with disadvantaged children clearly indicate the need for special intervention techniques if these children are to make an adequate adjustment to school. Though the need for intervention is clear, the areas in which intervention is most needed (and optimal techniques to use for such intervention) have not been clearly delineated. The investigators in the present study assumed that oral language and reading were two critical areas in which special effort might facilitate some improvement in educational adjustment. The choice of these curricular areas was dictated primarily by two factors: 1) these are areas of the school curriculum in the primary grades which receive the most emphasis, and 2) these are the areas in which disadvantaged children appear to be most inferior.

Other investigators have developed programs based upon similar assumptions. Bereiter and Englemann (1966) have designed a pre-school program specifically to develop cognitive processes. The curriculum includes reading, language, and arithmetic activities directed toward a few minimum, but specific goals. They contend that a pre-school program cannot remediate all the educational deficiencies of the disadvantaged. Therefore, selective focusing on specific objectives must take place if the program is to have maximal impact. In addition, they take the position that, by middle class standards, much of cultural deprivation is essentially language deprivation. Thus, the basic thrust of their program is designed to teach specific language skills. Lloyd (1965), in discussing reading instruction in the New York City Schools, points out the need to improve the reading achievement of disadvantaged children. Efforts to encourage earlier language development and urban-oriented are among the avenues being explored to accomplish this goal. Shepard (1962), in the St. Louis Schools, has demonstrated that deprived children can achieve at grade level when a concentrated effort is made to teach them basic academic skills.

A great deal of research evidence exists to support the thesis that a disproportionate number of deprived children have low IQs

(Haggard, 1954; Hunt, 1961; Sexton, 1961). Recent research (Kennedy, Van DeReit, & White, 1960) provides evidence that Negro school children of the South are severely handicapped in their ability to respond to well-known verbal tests of intelligence, such as the 1960 Stanford-Binet, and are subject to progressive retardation in cognitive development as they advance through school. The mean IQ score of disadvantaged children studied was approximately 85. Thus, perhaps as many as 50 percent of these boys and girls could be classified as slow learners, and many as mildly retarded. In terms of intelligence test scores, over half of these pupils would be more than seven years of age before developing a mental age score of six years.

In the past, many educators have held that mental age was probably the best single basis for estimating the educational level at which a child can be expected to achieve in school (Neville & Bruininks, in press). Consequently, only children with average intellect or above were assumed to be "ready" for formal instruction in reading upon entering school. According to this rule, a child with an IQ of 75 would need to be eight years of age before he would possess the requisite mental readiness to begin formal instruction in reading. As a result of this guideline, some teachers of underprivileged children have not exposed their primary school pupils to formal instruction in reading for as much as one or two years after entering school. Instead, they have emphasized extensive reading readiness activities. The work of Haynes (1959) suggests that this prevalent viewpoint concerning the need for an extended reading readiness program before beginning formal reading instruction may be in error.

Another widely accepted tenet among educators has been the constancy of intellectual ability. Intelligence has been viewed by many teachers as a global ability, determined largely by inheritance. Studies by Kirk (1959), Skeels (1965), and others (Hunt, 1961) suggest that intelligence is far more amenable to change as a consequence of stimulation, or deprivation, than has been generally assumed. Furthermore, writers such as Guilford (1959) suggest that intelligence may be viewed advantageously as a constellation of abilities rather than as a general factor.

Language has been identified as a major component of mental ability. The work of Soviet researchers (Vygotsky, 1962; Luria, 1963) has demonstrated clearly the role of language as an essential tool to human thought. In an Early Training Project (Klaus & Gray, 1963; Gray & Klaus, 1965), language development was an important part of the instructional program provided to 60 pre-school Negro children in Murfreesboro, Tennessee. The Murfreesboro project continued over three years and included intensive summer instruction as well as contact with home instructors during the winter months. The program concentrated on developing positive attitudes toward school and physical development. In a later follow-up evaluation, Klaus and Gray (1967) report that the experimental subjects made significantly greater gains than the controls on the 1960 Stanford-Binet, the

Illinois Test of Psycholinguistic Abilities, the Peabody Picture Vocabulary Test, and on measures of academic achievement.

Our thesis is that disadvantaged children can, with adequate stimulation, make normal academic progress in the primary grades. Increased support for this prediction has developed recently. Nevertheless, a major question remains to be answered, namely, how early is it necessary to begin a formal school program to counter the effects of deficient cultural opportunities? Kirk (1958), as a result of an experiment in which pre-school children with IQs between 60 and 80 were provided with a standard kindergarten program, concluded that six years was not too late to begin school for children from adequate homes, but did appear to be too late for children from inadequate homes and neighborhoods. Conant (1961), in Slums and Suburbs, pointed out the urgent need to provide kindergarten programs for underprivileged children. Thus, when formal education is begun as late as the age of six years, it is questionable whether disadvantaged pupils can expect to work up to grade placement in their school work. However, due to the new teaching methods now available, there is a greater chance of them doing so today than even five years ago. The present study is intended to investigate the feasibility of altering the language arts program in the primary grades.

The results of the CLDP after two years furnished evidence that deprived children can make adequate progress with added stimulation. As reported by Dunn *et al*. (1967), the results showed that:

1. Children learning to read in ITA plus PLDK obtained significantly higher reading achievement scores on the Metropolitan Achievement test.
2. In terms of language development, the PLDK lessons increased overall language functioning as measured by the Illinois Test of Psycholinguistic Abilities and the Peabody Language Production Inventory, the children receiving PLDK for two years making greater language age gains than the non-PLDK and the one-year PLDK groups. Moreover, the one-year PLDK pupils made greater gains in comparison to the non-PLDK children.
3. In terms of intellectual growth, the two-year PLDK group made significantly greater gains in MA than the non-PLDK, and one-year PLDK groups.
4. There were no appreciable differences between the various personnel arrangements (team teaching, regular teacher, regular teacher plus a community volunteer) under which the PLDK was taught.

These results suggest, at least after two years in school, that increased stimulation can help deprived children make more progress than has been traditionally reported.

CHAPTER II

STUDY DESCRIPTION

This chapter includes a description of the subjects, treatment programs, and measurement techniques used in the study.

Subjects

Although some of the children in any given project school could not be described as disadvantaged, administrative considerations required that initial selection of subjects be based on total classrooms. In selecting project schools, the administrative personnel of the Nashville Metropolitan School District were asked to nominate those schools in which the largest proportion of children would be likely to fit the description of culturally deprived, or socially disadvantaged. On the basis of this selection, principals of nine public elementary schools were invited to attend a meeting for the purpose of orientation to the project. Eight of the nine principals volunteered to take part in the program. Three additional schools located in neighborhoods comparable to those surrounding the eight experimental schools were asked to provide control children. A total of 34 teachers was available in the eight experimental schools. Of this group, four teachers were unable to participate in the experiment for various reasons.

Initially, a total sample pool of nearly 1,000 children was designated to participate in the CLDP. Several factors acted to reduce the size of the experimental sample. These factors included moving out of the project area, movement into non-treatment or contrasting treatment classrooms, incomplete pretest and posttest data, and failure to meet the criteria established for disadvantaged children, etc. During the year 1964-65, complete pretest and posttest data were available on 732 subjects--630 in the experimental treatments and 102 in the control group (Dunn & Mueller, 1966). For the second year (1965-66), complete data were available on 384 subjects --343 experimental and 41 control subjects (Dunn *et al.*, 1967). For the third and final year (1966-67), nearly complete data were available on 234 subjects -- 191 experimental and 43 control subjects. The final statistical analyses were conducted on 196 children (see Chapter III).

Basic home and background information on all subjects used in the primary analysis can be found in Table 1. From the pool of 234 subjects, children who did not meet criteria for being classified as disadvantaged were deleted to arrive at the sample of 196 subjects. According to these criteria, children were deleted from the sample if the combination of data on housing and educational level indicated above average socioeconomic status. An inspection of Table 1 indicates that the three-year PLDK group was still rated somewhat higher than the other group in socioeconomic status, as indicated by the indices of education and housing.

Table 1

Basic Home and Family Information on the Selected Samples

Group	Percentage of Negro Race	Percentage of Families on Welfare	Average No. of Persons per Family	Mean of Educ. Level of Parent	Housing Conditions			
					Extremely poor	Moderately poor	Fair	Good
Without PLDK								
With ITA	83.30	9.80	6.07	10.78	25.00	17.50	45.00	12.50
With TO	97.70	3.60	6.94	10.18	20.60	32.40	32.40	14.70
Total	90.60	7.20	6.47	10.49	23.00	24.30	39.20	13.50
One Year PLDK								
With ITA	90.90	12.50	7.40	9.00	25.00	31.20	40.60	3.10
With TO	90.90	10.70	8.18	10.08	13.80	24.10	37.90	24.20
Total	90.90	11.70	7.78	9.49	19.70	27.90	39.30	13.10
Two Years PLDK								
With ITA	100.00	12.50	6.12	11.25	0.00	37.50	50.00	12.50
With TO	75.00	42.80	6.25	10.62	0.00	25.00	25.00	50.00
Total	87.50	26.70	6.19	10.94	0.00	31.25	37.50	31.25
Three Years PLDK								
With ITA	100.00	0.00	5.69	13.00	0.00	0.00	30.80	69.20
With TO	57.10	7.70	7.25	10.69	0.00	0.00	30.80	69.20
Total	78.57	3.80	6.44	11.85	0.00	0.00	30.80	69.20
Totals								
With ITA	89.70	9.60	6.46	10.52	19.40	21.50	41.90	17.20
With TO	87.80	10.50	7.34	10.33	13.10	23.80	33.30	29.80
Grand Total	88.70	10.00	6.87	10.43	16.40	22.60	37.80	23.20

Pretest measures on age, intelligence and language development on this same sample are found in Chapter III, Table 2. Inspection of the pretest IQ means indicates that the children in the selected sample had a mean IQ of 86.11. Thus, the children as a group would be classified as slow learners.

Experimental Treatment Programs

This study was designed to test the efficacy of two adaptations of the regular primary grade curriculum. One adaptation involved a program of oral language development. The other adaptation involved substituting the Initial Teaching Alphabet for the conventional reading program used in the schools. These two programs are described below.

Peabody Language Development Kits

Experimental editions of Levels #1, #2, and #3 of the PLDK were used in the first, second, and third years of the study, respectively.[2] The PLDK lessons are planned to provide 30 to 40 minutes of well-planned oral language stimulation exercises each day. The philosophy of the PLDK is that Language Time should be a half hour interlude from conventional school work. Though the early lessons require considerable teacher participation, the overall goal was to maximize the oral language behavior of the pupils by giving them an opportunity to think and talk in a less structured setting than regular instructional periods of school work. The children were not called upon to read, write, or do seat work. Due to this being an experiment, teachers were encouraged to follow the lessons as closely as possible. They were, however, free to make minor adaptations in content, particularly where it seemed necessary in order to take into account individual differences among pupils.

The 180 daily lessons in PLDK, Level #1, were designed by Dunn and Smith (1965) to stimulate oral language and verbal intelligence by training the linguistic processes of reception, expression, and conceptualization. Figure 1 pictorially illustrates the psycholinguistic processes trained by the PLDK program. Training of reception is provided through stimulation of the three modalities of sight, hearing, and touch. Expression is stimulated through both the vocal and motor channels. The lessons concentrate on the development of verbal intelligence through exercises in divergent, convergent, and associative thinking. The lessons are designed for children functioning intellectually between the ages of four and one-half to six and one-half years.

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[2] Revised versions of Level #1, #2, and #3 of the Peabody Language Development Kits are available from American Guidance Service, Inc., Publishers' Bldg., Circle Pines, Minn., 55014.

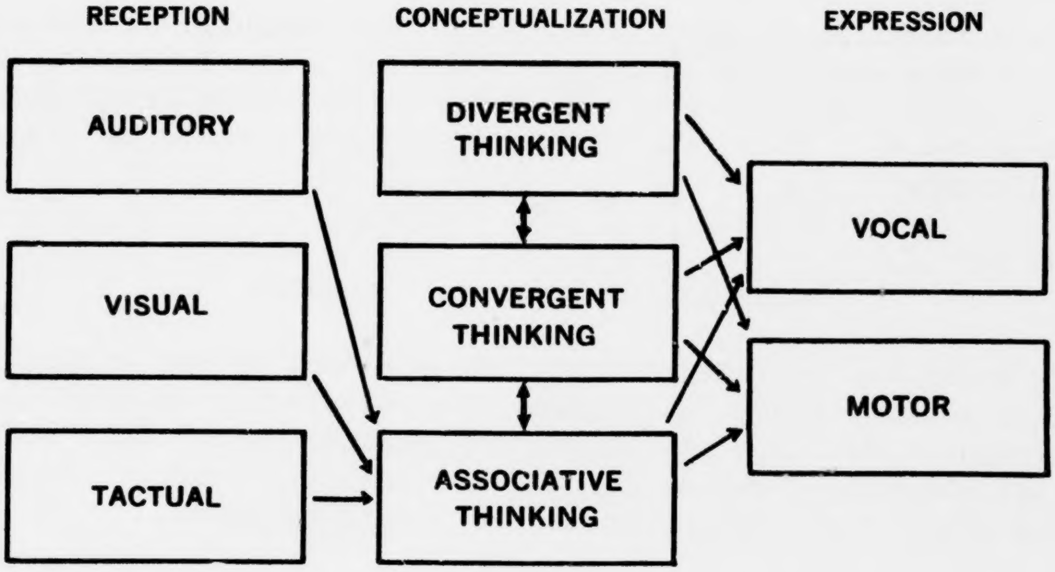

Fig. 1 Model of the psycholinguistic processes trained by the Peabody Language Development Lessons.

Level #2 (Dunn & Smith, 1966) is a continuation of the program in Level #1. This level is designed for children whose mental ages are in the range six to eight years. Included in the experimental edition were 180 daily lesson plans, each containing three activities from among 24 different categories. Typical categories were: brainstorming, classification, story time, and vocabulary building. Also, the Kit included over 400 picture cards, I Wonder cards, plastic color chips, two hand puppets, and a recorded tape.

Level #3 (Dunn & Smith, 1967) is a continuation of the oral language program provided by Levels #1 and Levels #2. The experimental version of this level also included 180 daily lessons. Through this series of lessons, the children received 692 different activities with an average of slightly more than three activities per lesson. In order of emphasis, the 12 most frequently presented activities were: Reasoning Time, Memory Time, Following Directions Time, Information Time, Sentence Building Time, Vocabulary Building Time, Imagination Time, Listening Time, Relationships Time, Storymaking Time, Classification Time, and Activity Time. Lesser attention was given to the following 10 activities: Conversation Time, Describing Time, Dramatization Time, Guessing Time, Looking Time, Patterning Time, Rhyming Time, Speech Development Time, Speed-up Time, and Touching Time. Major emphasis is placed on conceptualization (or cognitive development). In addition to the manual of 180 daily lessons, 214 7" x 9" stimulus cards were included in the Kit, arranged in nine different categories, as well as 12 large I Wonder cards, six large Story-making cards, 560 plastic color chips, and two hand puppets. Level #3 focuses on children with language ages in the range seven and one-half to nine and one-half years. It was designed especially for third-grade disadvantaged children.

A secondary aspect of this investigation was to evaluate the effectiveness of the PLDK taught under a variety of administrative arrangements and by different kinds of personnel. Some classes were taught PLDK as a total group, while others were divided into two groups for the oral language program (classes averaged 30 to 35 pupils). Research with an earlier version of the language stimulation program (Smith, 1962) had utilized an itinerant language developmentalist to conduct all language training sessions. To investigate whether the regular classroom teacher could be just as effective with these lessons and materials, four types of different teaching organizations were evaluated. These arrangements included the regular teacher, team teaching, and the regular teacher assisted by a community volunteer. The results of many of these analyses are contained in earlier reports (Dunn & Mueller, 1966; Dunn _et al._, 1967). Chapter IV reports the results of contrasting only the regular and team teaching approaches to teaching PLDK, irrespective of group size.

Initial Teaching Alphabet

The _Early-to-Read_ series developed by Mazurkiewicz and Tanyzer (1963) was used as the beginning reading program in ITA. This program consists of eight textbooks and five workbooks designed to carry a child from a point of beginning reading in ITA through the transition to traditional orthography (TO) at the upper third grade level. In contrast to the _Downing Reading Series_ from England, which utilizes a sight vocabulary approach, the Mazurkiewicz and Tanyzer program is based on the premise that children should first learn the individual sound-symbol relationships before being taught to synthesize them into words. Thus, a phonetic rather than a sight vocabulary approach is used.

None of the experimental teachers had used ITA before. Prior to the opening of school, the teachers participated in a three-day workshop. They were encouraged to follow the reading program as closely as possible. All teachers tended to stress learning of sound symbols in isolation and in key words. Some variability occurred in the extent to which the teachers used experience charts, labels for objects in the room, and bulletin boards to supplement the ITA reading experiences. A small collection of supplementary reading materials in ITA was also provided in each classroom, including a set of the Downing Readers, as well as books in TO.

The last two textbooks in the _Early-to-Read_ series (#7 and #8) are designed to make the transition from ITA to TO. Following the transition, the children in the experiment moved into Book 2-1 of the _Basic Reading_ series by McCracken and Walcutt (1963), published by the J. B. Lippincott Company. This program has a systematic phonic approach and appeared to be especially appropriate as a follow-up to the _Early-to-Read_ series. About one-third of the experimental children completed the _Early-to-Read_ series before the end of the first school year. A few, who had not finished the ITA series by Christmas of the second year, were shifted at that time into the easier first grade work in the _Basic Reading_ series.

The ITA teachers were asked to stay with their pupils for a period of two years. At least two teachers in a school were using ITA which provided a buddy system for the sharing of problems. A number of the teachers re-grouped their pupils during the second year, one teacher taking the more able, and the other the less able children. In several cases, new teachers replaced teachers who moved.

The control children used a conventional beginning reading program provided by the Reading for Meaning series, published by Houghton-Mifflin (McKee, Harrison, McCowen, & Lehr, 1963).

Teachers

During the first school year (1964-65), 31 first grade classes from the six schools participated in the experimental treatments. In the second year (1965-66), 30 experimental classes were involved in the study (the two classes taught by itinerant teachers were combined due to a loss in subjects). In the final year (1966-67), children in 30 classrooms were evaluated (of which five classes were receiving Level #3 of PLDK). All of the experimental and control teachers in the project had more than one year of teaching experience, were fully certified in elementary education, and held one or more degrees.

The experimental teachers in this study were given a number of incentives which were not available to the control teachers. They were provided with a supplementary stipend of $300 and were asked to attend in-service training sessions throughout the year (approximately one every two weeks). The experimental teachers were provided other stimulation. Supplementary materials were purchased. They were visited frequently by researchers, school officials, and other visitors and were given considerable recognition by their principals. Furthermore, the experimental teachers had an opportunity to observe each other teach, to share ideas, and were visited regularly by a supervisor. There can be little doubt that the teachers knew they were participants in an experiment. Motivation to excell in teaching was high. In contrast, the control teachers were not granted commensurate stimulation. The control children were tested only at the beginning and end of the year. The pretesting undoubtedly alerted the control teachers that the progress of their pupils was being monitored. Nevertheless, a very important part of the experiment treatment was the added incentives given to the experimental teachers, but not provided to the control teachers.

Evaluation

The program was appraised in four areas: school achievement, language abilities, intellectual functioning, and creative thinking.

School Achievement

The Metropolitan Achievement Test (MAT), Elementary Battery, was used to provide achievement data at the end of the third grade. The MAT was selected because it is used throughout the Nashville-Davidson County Metropolitan Public schools and is administered routinely each year. This not only allowed for direct comparison of school achievement between the experimental group and all other children in the school district, but also reduced test-administration problems. Five subtests were administered: word knowledge, word discrimination, reading comprehension, spelling, and language. The test was standardized on a nation-wide sample of school children. Median subtest reliability coefficients, based on a corrected split-half method, are 0.93 for word knowledge, 0.92 for word discrimination, 0.90 for reading comprehension, 0.95 for spelling, and 0.84 for language total.

Language Abilities

The Illinois Test of Psycholinguistic Abilities (ITPA), Experimental Edition, and the Peabody Language Production Inventory (PLPI) were used to provide data on language abilities. The ITPA was used as the principal measure of language skills, while the PLPI was used to provide supplementary data on oral expression.

The ITPA (McCarthy & Kirk, 1961) is an individually administered test measuring language abilities across the age range of 2-6 to 9-0 years. It yields age equivalent and standard scores on total language functioning as well as on each of the nine different subtests. The following nine facets of oral language development are measured by the ITPA subtests:

1. Auditory decoding -- the ability to understand spoken words.
2. Visual decoding -- the ability to classify pictures from memory.
3. Auditory-vocal association -- the ability to reason by analogies.
4. Visual-motor association -- the ability to relate pictures in a meaningful way.
5. Vocal encoding -- the ability to express ideas in spoken words.
6. Motor encoding -- the ability to express ideas in gestures.
7. Auditory-vocal automatic -- the ability to produce language automatically and accurately in a grammatical sense.
8. Auditory-vocal sequencing -- the ability to reproduce a series of digits accurately from memory.
9. Visual-motor sequencing -- the ability to reproduce a series of pictures from memory.

The ITPA is designed to measure two levels of meaning -- the representational level in which subjects must deal meaningfully with language symbols (subtests one through six), and the automatic-sequential level in which subjects deal with the nonmeaningful, automatic aspects of language (subtests seven through nine). Three processes of language are measured -- decoding or reception, encoding or expression, and association described by the test authors as the internal manipulation of symbols. The ITPA measures two stimulus channels (auditory and visual) and two response channels (vocal and motor).

A split-half reliability coefficient of 0.99 and a test-retest reliability coefficient of 0.97 are reported for the standardization sample. At present, evidence of validity for the ITPA is limited. Early studies of the test have indicated fairly high correlations with measures of general intelligence. In the standardization of the test, McCarthy & Kirk (1961) report a correlation of 0.96 between the age scores of the Stanford-Binet and the ITPA. The ITPA was selected as principal measure of language abilities on the basis of the promise it has shown in early studies and the extensive research its publication has stimulated. Furthermore, it was the only available and well developed test oral language functioning at the initiation of the project.

The PLPI (Nelson, 1964) was used to provide data on the oral language abilities involved in the production of connected, free speech. This individualized test is nonstandardized. The PLPI is administered by showing the subject a series of three pictures (street scene, Good Humor Man scene, operating room scene) and asking him to relate a story about the pictures. The responses to each picture are rated on level of abstraction, structural complexity, and general speech quality. A single raw score pooled over these three categories was used in this study.

Intellectual Functioning

The Stanford-Binet Intelligence Scale (S-B) was used to secure data on intellectual functioning. The S-B (Terman & Merrill, 1960) is a standardized, individually administered intelligence scale yielding mental age and intelligence quotient scores. The test items range from the simple manipulation of objects to abstract reasoning. They are grouped into age levels according to an ascending order of difficulty, ranging from age two to superior adult. Although the test includes a number of performance-type items, particularly at lower age levels, its content is essentially verbal. Depending on age and IQ level, reliability coefficients of earlier editions range from 0.83 to 0.98 (Sontag, Baker, & Nelson, 1958). Higher correlations are obtained at upper age levels, and lower IQ levels. Validity in predicting school achievement, particularly the more verbally oriented skills such as language and reading, has been generally good. Bond (1940) reported correlation coefficients ranging from 0.43 to 0.73 between Binet scores and achievement in various school subjects among tenth grade pupils. Although the 1960 edition of the scale was not re-standardized, the test authors suggest the latest revision retains the main characteristics of the 1937 edition, including high reliability and validity. The S-B is one of the most widely used tests of general intelligence (Silverstein, 1953; Weise, 1960). In addition, it is the individually administered intelligence scale which has been demonstrated to be effective for the age and ability level of the subjects in the present sample.

Creative Thinking

The Torrance Tests of Creative Thinking (Torrance, 1966) were used as a measure of creative thinking. Many definitions of creativity exist which include invention, discovery, and rare, highly specific kinds of ability. Torrance (1966) defines creativity as "a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so on: identifying the difficulty, searching for solutions, making guesses, or formulating hypotheses about the deficiencies, testing and retesting these hypotheses and possibly modifying and retesting them, and finally communicating the results (p.6)."

The Research Edition of the Torrance Tests of Creative Thinking (Torrance, 1966) is the result of approximately nine years of research and development. The tests are divided into Verbal and Figural tasks. Alternate forms for the tests are available which cover an age-range from kindergarten through graduate school.

The Verbal Tests consist of seven parallel tasks. In the CLDP evaluation, only the first four tests of Form A were administered. These tests included the following activities:

1. The Ask and Guess Activity (Test #1) -- asking questions about a drawing. The questions are not answerable by merely looking at the picture.

2. The Guess Causes Activity (Test #2) -- making guesses about the causes of the event pictured.

3. The Guess Consequences Activity (Test #3) -- making guesses about the possible consequences of the event.

4. The Product Improvement Activity (Test #4) -- producing ideas for improving a toy so that it will be more fun for children to play with.

After extensive field testing, the project staff modified the directions and scoring criteria for individual testing (see Appendix B).[3]

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[3] The scoring system was altered only to include the category which focused on the physical characteristics of the drawing (e.g., artist's initials, lines, etc.).

The Figural Tests, Form B, included three activities. These activities were administered individually, using the standardized directions. These activities included:

1. Picture Construction -- the subjects are asked to think of a picture in which a given shape made of colored paper is an integral part (jelly bean shape).

2. Incomplete Figures -- the subject is asked to complete an unfinished figure.

3. Repeated Figures -- the subject is asked to make multiple associations to a single stimulus (circles).

Although norms exist on the Torrance Tests, raw scores were used in all statistical analyses. Three scores were used for the Verbal (fluency, flexibility, and originality), and four on the Figural tests (fluency, flexibility, originality, and elaboration). These scores are defined as:

1. Verbal Fluency -- ability to produce a large number of ideas with words.

2. Verbal Flexibility -- ability to produce different types of ideas or strategies.

3. Originality -- ability to produce ideas that are distinct from the obvious and commonplace. (Torrance maintains that subjects who achieve a high score on Verbal originality usually have a great deal of intellectual energy and may be rather nonconforming.)

In addition to Fluency, Flexibility, and Originality measures, the Figural Tests also include a score in the category of elaboration. The Elaboration score reflects the subject's ability to develop and embellish ideas. The basic difference(s) between Verbal and Figural test scores involve (s) variations in content rather than process.

The Torrance Tests were included because research has shown that they appear to be sensitive to the differential kinds of growth or change resulting from different teaching procedures, environmental conditions, etc. Moreover, they appear to be especially sensitive to one of the kinds of skills the Peabody Language Development Kits seek to develop -- namely divergent thinking. The normative and research data reported in the manual suggest that the tests measure reliability (most of the retest coefficients range between .70 and .90).

Testing Schedule

The S-B, ITPA, and PLPI were given to the children prior to the beginning of school, as pre-test measures, in the Fall of 1964. A few youngsters who were not tested prior to the beginning of school were tested during the first week of school. Interim testing took place during the Spring of 1965, and again in the Spring of 1966. The final evaluation was conducted in the Spring of 1967. Achievement tests were administered during the last four weeks of school by project personnel, with classroom teachers assisting as monitors. The individual tests (S-B, ITPA, and PLPI, and Torrance Tests) were re-administered during the last six weeks of school by psychologists and psychometric technicians on the project staff.

CHAPTER III

THE EFFICACY OF THE INITIAL TEACHING ALPHABET AND THE PEABODY LANGUAGE DEVELOPMENT KITS

The purpose of this aspect of the study was to evaluate the efficacy of: (1) ITA as an approach to teaching beginning reading, and (2) the Peabody Language Development Kits (PLDK) in stimulating oral language, creative thinking, school achievement, and verbal intelligence. It was predicted that: (1) the use of ITA to teach initial reading skills would enhance reading ability; (2) the use of the PLDK lessons would raise the children's IQs while concomitantly enhancing their oral language development, creative thinking, and school achievement; (3) ITA plus PLDK would be even more effective in fostering verbal intelligence, language development, creative thinking, and school achievement; and (4) the length of PLDK training would be related directly to the magnitude of growth in verbal intelligence, language ability, creative thinking, and school achievement (i.e., three years > two years > one year).

Procedures

A total of 196 subjects comprised the selected sample that was used in most of the statistical analyses. The research design and the number of subjects belonging to each treatment group appear in Figure 2. Subjects were considered eligible for admission into the selected sample if they

	Amount of Oral Language Stimulation				
Method of Teaching Reading	Without	With 1 Year	With 2 Years	With 3 Years	
ITA	Boys = 19 Girls = 23 Total = 42	Boys = 13 Girls = 21 Total = 34	Boys = 5 Girls = 3 Total = 8	Boys = 7 Girls = 7 Total = 14	98
TO	Boys = 23 Girls = 19 Total = 42	Boys = 17 Girls = 17 Total = 34	Boys = 5 Girls = 3 Total = 8	Boys = 9 Girls = 5 Total = 14	98
	84	68	16	28	

Fig. 2. Research design and number of subjects used in the statistical analyses.

possessed complete pre- and post-test scores on the S-B, PPVT, and ITPA. Moreover, all sample subjects had complete written language subtest scores on the MAT. Nearly all of the subjects also possessed complete interim tests scores (1965-66). On each subject, the complete test data used in the statistical analyses on all tests are presented in Appendix B.[4]

In the interim report analyses (Dunn & Mueller, 1966; Dunn et al., 1967), subjects were excluded if: 1) their IQs exceeded 110, 2) they lived in good housing, and 3) they had average, or above average, socioeconomic status. Due to extensive attrition in the two- and three-year PLDK groups, it was necessary to delete the IQ criterion. Analysis of variance on pretest CA, IQ, and LA indicated significant differences among groups on all variables (see Tables 2 and 3). On CA, differences were due principally to the higher ages of the children receiving reading in traditional orthography (TO), particularly those in the one- and two-year PLDK groups. The significant pretest IQ and LA differences were the result of the superior attainment of the three-year PLDK groups. Moreover, on socioeconomic status, the three-year PLDK group is somewhat higher than the other groups on the indices of housing and education (See Table 1, Chapter II).

Thirteen teachers from six schools were involved in the ITA and PLDK treatments reported in this chapter: four in ITA only (Group 1); two in ITA plus one year of PLDK (Group 2); one in ITA plus two years of PLDK (Group 11); one in ITA plus three years of PLDK (Group 18); two in TO plus one year of PLDK (Group 3); two in TO plus two years of PLDK (Group 12); and one in TO plus three years of PLDK (Group 19).

Results

The results from the intervention treatments at the end of the final year of the study are reported below for each of the following areas of evaluation: intellectual functioning, language abilities, creative thinking, and school achievement. Summaries of the basic descriptive data for the selected sample on these four areas by treatment group are reported in Tables 4, 8, 19, and 17, respectively. The results were analyzed statistically by a 2 x 4 factorial analysis of variance, or covariance (Lindquist, 1953). All significant major effects and interactions were analyzed further through the use of _t_ tests. Since the CLDP is an exploratory educational intervention project, the authors decided to adopt the .10 level of significance.

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[4] A total of 38 subjects were deleted for the following two reasons: 1) randomly to meet the criterion proportionality in the analysis of variance, and 2) high pretest chronological age.

Table 2

Summary of Pretest Data on the Selected Samples

Used for the Third Year Analyses

Treatment Group	N	CA		SB-IQ		PPVT-IQ		ITPA-LA	
		$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S
Without PLDK									
With ITA	42	74.40	3.90	87.26	13.69	73.05	22.22	61.29	8.77
With TO	42	74.43	3.88	83.71	11.16	74.90	19.23	61.50	6.78
Total	84	74.42	3.87	85.49	12.54	73.98	20.68	61.39	7.79
One year PLDK									
With ITA	34	76.18	6.69	80.12	10.74	68.29	21.79	59.76	7.21
With TO	34	79.32	6.95	83.65	14.75	78.24	19.13	63.12	9.13
Total	68	77.75	6.95	81.88	12.93	73.26	20.95	61.44	8.34
Two years PLDK									
With ITA	8	74.75	3.62	85.62	10.31	78.88	11.24	59.25	5.47
With TO	8	82.88	7.12	83.62	10.43	75.50	24.59	71.50	18.94
Total	16	78.81	6.88	84.62	10.07	77.19	18.56	65.38	14.88
Three years PLDK									
With ITA	14	73.29	3.47	96.43	8.56	97.93	13.12	69.43	7.39
With TO	14	75.50	4.55	101.71	17.60	97.43	15.72	73.00	8.83
Total	28	74.39	4.13	99.07	13.85	97.68	14.21	71.21	8.19
Totals									
With ITA	98	74.59	5.03	85.96	12.82	75.43	22.29	61.76	8.38
With TO	98	76.97	6.10	86.26	14.71	79.33	20.37	64.52	10.16
Grand total	196	75.93	5.67	86.11	13.76	77.38	21.39	63.14	9.39

Table 3

Analysis of Variance of Pretest Data by Treatment Group

Variable	Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio	$F_{.90}$
CA	Between	7	1083.4805	154.7829	5.6159*	1.72
	Within	188	5181.5195	27.5612		
	Total	195	6265.0000			
SB-IQ	Between	7	6649.2600	949.8942	5.8935*	1.72
	Within	188	30301.9207	161.1756		
	Total	195	36950.2807			
PPVT-IQ	Between	7	15467.4938	2209.6419	5.6393*	1.72
	Within	188	73663.2562	391.8258		
	Total	195	89130.7500			
ITPA-LA	Between	7	3239.6334	462.8047	6.2363*	1.72
	Within	188	13951.6473	74.2108		
	Total	195	17191.2807			

*p $<$ .01

Intellectual Functioning

The pretest, posttest, and gain scores on S-B and PPVT IQ are reported in Table 4. For the statistical analyses, gain scores obtained from subtracting pre- and post-test performances were utilized. Table 5 contains the analyses of variance on IQ gains for the S-B. On the S-B, there was no significant difference between methods of teaching reading. On PLDK, however, children in the two- and three-year groups made significantly greater IQ gains than did those children who did not receive PLDK, or received PLDK for one year (W/O = 1.56; W/1 = 4.81; W/2 = 8.19; W/3 = 7.89). Furthermore, the one-year PLDK group made significantly higher gains than the non-PLDK group. A significant method of teaching reading by PLDK interaction was obtained.[5] Breakdown of this interaction indicated that among children who received reading instruction in ITA, the three-year

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[5] Hereafter, statistical comparisons involving the ITA and TO approaches to teaching reading will be referred to as "methods of teaching reading."

Table 4

Means and Standard Deviations for Intellectual

and Language Development

Pre-, Post-, and Gain-Scores

Treatment Group	N		SB-IQ			PPVT-IQ			ITPA-LA		
			Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
Without PLDK											
With ITA	42	$\bar{X}$	87.26	87.00	-0.26	73.05	85.64	12.60	61.29	85.93	24.64
		S	13.69	14.09		22.22	13.68		8.77	12.21	
With TO	42	$\bar{X}$	83.71	87.10	3.38	74.90	84.43	9.52	61.50	88.43	26.93
		S	11.16	11.45		19.23	8.53		6.78	11.26	
Total	84	$\bar{X}$	85.49	87.05	1.56	73.98	85.04	11.06	61.39	87.18	25.79
		S	12.54	12.76		20.68	11.35		7.79	11.74	
One Year PLDK											
With ITA	34	$\bar{X}$	80.12	84.62	4.50	68.29	81.24	12.94	59.76	85.24	25.47
		S	10.74	12.98		21.79	11.26		7.21	11.56	
With TO	34	$\bar{X}$	83.65	88.76	5.12	78.24	83.97	5.74	63.12	87.74	24.62
		S	14.75	16.16		19.13	15.77		9.13	11.86	
Total	68	$\bar{X}$	81.88	86.69	4.81	73.26	82.60	9.34	61.44	86.49	25.04
		S	12.93	14.70		20.95	13.67		8.34	11.69	
Two Years PLDK											
With ITA	8	$\bar{X}$	85.62	95.38	9.75	78.88	85.00	6.12	59.25	93.88	34.62
		S	10.31	8.33		11.24	5.50		5.47	9.82	
With TO	8	$\bar{X}$	83.62	90.25	6.62	75.50	86.62	11.12	71.50	92.00	20.50
		S	10.43	14.81		24.59	11.84		18.94	14.54	
Total	16	$\bar{X}$	84.62	92.81	8.19	77.19	85.81	8.62	65.38	92.94	27.56
		S	10.07	11.91		18.56	8.96		14.88	12.02	

-continued

Table 4 -continued

Means and Standard Deviations for Intellectual

and Language Development

Pre-, Post-, and Gain-Scores

Treatment Group	N		Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
Three Years PLDK											
With ITA	14	$\bar{X}$	96.43	109.07	12.64	97.93	102.50	4.57	69.43	103.43	34.00
		S	8.56	9.11		13.12	11.69		7.39	9.94	
With TO	14	$\bar{X}$	101.71	104.86	3.14	97.43	102.57	5.14	73.00	108.07	35.07
		S	17.60	17.17		15.72	12.72		8.83	6.72	
Total	28	$\bar{X}$	99.07	106.96	7.89	97.68	102.54	4.86	71.21	105.75	34.54
		S	13.85	13.66		14.21	11.99		8.19	8.66	
Total											
With ITA	98	$\bar{X}$	85.96	90.01	4.05	75.43	86.47	11.04	61.76	88.84	27.08
		S	12.82	15.04		22.29	13.78		8.38	13.03	
With TO	98	$\bar{X}$	86.26	90.47	4.21	79.33	87.04	7.71	64.52	91.29	26.77
		S	14.71	15.35		20.37	13.72		10.16	13.09	
Grand Total	196	$\bar{X}$	86.12	90.24	4.13	77.38	86.76	9.38	63.14	90.06	26.92
		S	13.76	15.16		21.39	13.72		9.39	13.08	

Table 5

Analysis of Variance of IQ Gains as Measured by the Stanford-Binet Intelligence Scale

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio	$F_{.90}$
A (ITA vs. TO)	1	1.3062	1.3062	0.0149	2.71
B (PLDK)	3	1246.2178	415.4059	4.7520**	2.08
A x B	3	954.6701	318.2233	3.6403*	2.08
Error	188	16434.3570	87.4167		
Total	195	18636.5511			

*p < .05;   **p < .01

PLDK group made the highest IQ gains (12.64), followed by the two-year, one-year, and non-PLDK groups W/0 = -.26; W/1 = 4.50; W/2 = 9.75; W/3 = 12.64). The PLDK groups who received reading instruction in TO were not found to be significantly different on IQ gains. Thus, the results on levels of PLDK between groups were due primarily to the significant differences obtained between the PLDK groups that received reading instruction in ITA (W/0 = -.26; W/1 = 4.50; W/2 - 9.75; W/3 = 12.64). Finally, within the non-PLDK groups, the children receiving reading instruction in TO obtained significantly higher IQ gains than those in the ITA group (ITA = -.26; TO = 3.38).

Table 6 contains the analysis of variance data on IQ gains for the PPVT. On the PPVT, no significant differences were obtained for PLDK, or methods of teaching. Failure to obtain significant differences on the PPVT appeared to be partially a function of the high variability found within each of the treatment groups on the pretest measure.

Language Ability

Language abilities were measured by the Illinois Test of Psycholinguistic Abilities (ITPA) and the Peabody Language Production Inventory (PLPI). Means and standard deviations for pretest, posttest, and gain scores on ITPA language age (LA) are presented in Table 4. The analysis

Table 6

Analysis of Variance of IQ Gains as Measured by the Peabody Picture Vocabulary Test

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio	$F_{.90}$
A (ITA vs. TO)	1	542.2245	542.2245	1.8107	2.71
B (PLDK)	3	818.9597	272.9865	0.9116	2.08
A x B	3	640.8888	213.6296	0.7134	2.08
Error	188	56295.9883	299.4467		
Total	195	58298.0613			

of variance of ITPA-LA gains, in months, is found in Table 7. The analysis of variance on LA gains failed to produce any significant difference between methods of teaching reading. A significant difference, however, was obtained on levels of PLDK. In comparison to the non-non-PLDK, one-year PLDK, and two-year PLDK groups, the three-year PLDK group made significantly higher LA gains. No significant differences were obtained in the comparisons among the other PLDK groups. A significant method of teaching reading by PLDK interaction was also obtained. A breakdown of this interaction indicated that, among groups who received reading instruction in ITA, the two- and three-year PLDK groups obtained significantly higher LA gains than both the non-PLDK, and one-year PLDK children (W/0 = 24.64; W/1 = 25.47; W/2 = 34.62; W/3 = 34.00). No significant differences were obtained between the non-PLDK and the one-year PLDK groups, or between the three-year PLDK and the two-year PLDK groups. Among children who received reading in TO, the three-year PLDK group was found significantly superior to the non-PLDK, the one-year PLDK, and the two-year PLDK groups (W/0 = 26.93; W/1 = 24.62; W/2 = 20.50; W/3 = 35.07). Finally, within the two-year PLDK group the ITA children gained significantly more in LA in comparison to the TO group. Within levels of PLDK, all other comparisons between ITA and TO were nonsignificant.

Means and standard deviations on posttest scores of the PLPI appear in Table 8. The analysis of variance on posttest scores of the PLPI

Table 7

Analysis of Variance of Language Age Gains as Measured by the Illinois Test of Psycholinguistic Abilities

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio	$F_{.90}$
A (ITA vs. TO)	1	4.9030	4.9030	0.0515	2.71
B (PLDK)	3	1977.9397	659.3132	6.9348**	2.08
A x B	3	923.2770	307.7590	3.2370*	2.08
Error	188	17873.7324	95.0730		
Total	195	20779.8521			

*p <.05
**p <.01

appear in Table 9.[6] A significant effect was found for levels of PLDK. A breakdown of this effect indicated that both the two-year and three-year PLDK groups obtained significantly higher scores than the one-year, and non-PLDK groups (W/0 = 69.18; W/1 = 73.65; W/2 = 83.31; W/3 = 85.78). Moreover, the one-year PLDK group obtained significantly higher scores than the non-PLDK group. No significant difference, however, was obtained between the two-and three-year PLDK groups. Finally, no significant differences were found on methods of teaching reading. Furthermore, the methods of teaching by PLDK interaction failed to reach statistical significance.

School Achievement

Appraisal of school achievement was made by giving the Elementary Battery of the Metropolitan Achievement Test (MAT) in TO to all subjects. Grade equivalent scores from the five written language subtests were employed in the statistical analyses. The MAT subtests include Word

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[6] Analysis of covariance was not utilized because a small negative correlation was found between pretest IQ scores and the scores on the PLPI. Also, note that a small reduction in the number of subjects occurs in this analysis. This resulted from a failure to obtain some PLPI scores. In the ITA, three-year PLDK group, the mean was substituted once in order to meet the criterion proportionality in the analysis of variance.

Table 8

Means and Standard Deviations by Treatment Group on the Peabody Language Production Inventory

Treatment Group	N	$\overline{X}$	S
Without PLDK			
With ITA	41	70.85	10.39
With TO	41	67.51	9.22
Total	82	69.18	9.85
One year PLDK			
With ITA	32	74.06	11.12
With TO	32	73.25	9.38
Total	64	73.65	10.13
Two years PLDK			
With ITA	8	83.88	9.20
With TO	8	82.75	8.80
Total	16	83.31	8.72
Three years PLDK			
With ITA	13	85.38	10.85
With TO	14	86.14	6.84
Total	27	85.78	8.82
Totals			
With ITA	95	75.04	11.73
With TO	96	73.43	11.09
Grand Total	191	74.23	11.41

Table 9

Analysis of Variance on Scores on the Peabody Language Production Inventory

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio	$F_{.90}$
A (ITA vs. TO)	1	137.0788	137.0788	1.4232	2.71
B (PLDK)	3	7152.8303	2384.2767	24.7558*	2.08
A x B	3	111.4608	37.1536	0.3857	2.08
Error	181	17432.4099	96.3116		
Total	188	24833.7798			

$^*p < .001$

Knowledge (WK), Word Discrimination (WD), Reading (R), Spelling (S), and Language (L). The means and standard deviations of these scores by treatment group are presented in Table 10. On all MAT analyses, covariance was used to remove statistically the differences between groups on pretest IQ. Adjusted means used in the analyses of covariance appear in Table 11.

In the interim report analyses (Dunn & Mueller, 1966; Dunn, _et_ _al_., 1967), the statistical design contrasted the achievement of boys and girls by treatment groups. In both reports, girls obtained significantly higher reading attainment scores. Due to subject attrition, it became necessary to collapse over this factor. An inspection of Figure 2 indicates that disproportionality on the factor of sex occurs within five treatment groups. To adjust for this disproportionality, the group sums were multiplied by the ratio of the mean achievement scores of girls to boys (i.e., girls/boys X group achievement sum). The degrees of freedom for the error term were also adjusted appropriately (i.e., N - Groups - 5).

Analysis of covariance on the WK subtest appears in Table 12. Inspection of the results indicate that a significant method of teaching reading by PLDK interaction was obtained. Analysis of this interaction yielded significant differences on levels of PLDK only among the groups that were taught reading in ITA. Children in the one-year, two-year, and the three-year PLDK groups were all significantly superior on WK to the children in the non-PLDK groups (W/0 = 3.14; W/1 = 3.46; W/2 = 3.81; W/3 = 4.21). Furthermore, the three-year PLDK group was significantly superior to the

Table 10

Means and Standard Deviations of Scores on Subtests of the Metropolitan Achievement Test

Treatment Group	N	L		WK		WD		R		S		T	
		$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S
Without PLDK													
With ITA	42	2.44	1.25	3.17	0.97	3.31	0.94	2.98	0.88	3.86	1.49	3.15	1.00
With TO	42	2.58	1.09	3.09	0.63	3.24	0.78	2.88	0.62	3.88	1.47	3.14	0.80
Total	84	2.51	1.16	3.13	0.82	3.28	0.87	2.93	0.76	3.87	1.47	3.14	0.90
One year PLDK													
With ITA	34	2.52	2.05	3.29	0.86	3.32	0.87	2.98	0.76	3.69	1.41	3.16	0.91
With TO	34	2.38	1.50	3.12	1.07	3.03	1.01	3.06	1.11	3.78	1.47	2.99	1.15
Total	68	2.45	1.78	3.20	0.97	3.18	0.95	3.02	0.94	3.53	1.44	3.08	1.03
Two year PLDK													
With ITA	8	3.76	0.84	3.80	0.72	3.42	0.70	3.16	0.44	4.39	1.04	3.71	0.59
With TO	8	1.96	0.85	2.72	0.39	2.81	0.41	3.12	0.34	3.04	0.80	2.73	0.36
Total	16	2.86	1.24	3.26	0.79	3.12	0.64	3.14	0.38	3.71	1.14	3.22	0.69
Three years PLDK													
With ITA	14	3.74	1.16	4.49	0.95	4.54	0.57	4.06	0.71	4.79	1.15	4.32	0.74
With TO	14	3.81	0.88	3.55	0.66	3.66	0.72	3.96	0.58	3.61	0.96	3.72	0.62
Total	28	3.79	1.01	4.02	0.93	4.10	0.78	4.01	0.64	4.20	1.20	4.02	0.73
Totals													
With ITA	98	2.76	1.61	3.45	1.01	3.50	0.95	3.15	0.86	3.98	1.42	3.37	0.99
With TO	98	2.64	1.30	3.14	0.82	3.19	0.87	3.12	0.87	3.60	1.38	3.14	0.92
Grand Total	196	2.70	1.46	3.29	0.93	3.35	.92	3.13	0.87	3.79	1.41	3.25	0.96

Table 11

Adjusted Means by Treatment Groups

for Scores on the Metropolitan Achievement Test

Treatment	N	WK	WD	R	S	T
Without PLDK						
With ITA	42	3.14	3.28	2.94	3.82	3.12
With TO	42	3.16	3.31	2.95	3.96	3.21
Total	84	3.15	3.30	2.95	3.89	3.16
One Year PLDK						
With ITA	34	3.46	3.49	3.16	3.90	3.36
With TO	34	3.18	3.10	3.14	3.86	3.07
Total	68	3.32	3.29	3.14	3.68	3.21
Two Years PLDK						
With ITA	8	3.81	3.44	3.18	4.40	3.72
With TO	8	2.79	2.88	3.20	3.13	2.81
Total	16	3.30	3.16	3.19	3.76	3.27
Three Years PLDK						
With ITA	14	4.21	4.26	3.76	4.42	3.99
With TO	14	3.12	3.23	3.51	3.06	3.22
Total	28	3.67	3.75	3.64	3.74	3.60
Totals						
With ITA	98	3.46	3.50	3.15	3.98	3.37
With TO	98	3.13	3.19	3.12	3.59	3.13
Grand Total	196	3.29	3.35	3.13	3.79	3.25

Table 12

Analysis of Covariance on the Word Knowledge Subtest of the Metropolitan Achievement Test

Source of Variation	Degree of Freedom	Sum of Squares Y	Sum of Squares X	Sum of Products XY	Corrected Sum of Squares Y	Degree of Freedom	Mean Square	F Ratio	$F_{.90}$
A(ITA vs. TO)	1	4.2251	4.2909	-4.2579	4.4615	1	4.4615	6.8839***	2.71
B(PLDK)	3	18.5290	5,987.0959	309.2571	5.4819	3	1.8273	2.8194*	2.08
A x B	3	6.8715	683.3425	-25.6431	7.7629	3	2.5876	3.9925***	2.08
Errors	183	140.7694	30,265.0207	830.8959	117.9580	182	0.6481		
Totals	190	170.3950	36,939.75	1,110.2520		189			

*p < .10
***p < .01

one-year group. No significant differences occurred between one- and two-years of PLDK, or between two- and three-years of PLDK. Finally, with the exception of the non-PLDK group, the ITA children obtained significantly higher scores than those receiving reading instruction in TO (ITA = 3.46; TO = 3.13).

Analysis of covariance on the WD subtest appears in Table 13. On the WD subtest, again a significant method of teaching reading by PLDK interaction was obtained. Analysis of this interaction indicated that the three-year PLDK group obtained significantly higher scores than the non-PLDK, one-year PLDK, and the two-year PLDK groups, when taught reading under ITA (W/0 = 3.28; W/1 = 3.49; W/2 = 3.44; W/3 = 4.26). In general, the differences obtained among PLDK groups who were taught to read in TO were not significant. Only the comparison between the non-PLDK and the two-year PLDK groups reached statistical significance. Again, within the one-year, the two-year, and the three-year PLDK groups, the children taught reading instruction under ITA obtained significantly higher WD scores than those taught reading in TO. However, within the non-PLDK group, no significant differences were obtained between the ITA and TO children.

The analysis of covariance on the R subtest appears in Table 14. On the R subtest, the only statistically significant effects were obtained on levels of PLDK. Statistical comparisons among PLDK groups indicated that the three-year PLDK group was significantly superior to all other PLDK groups (W/0 = 2.95; W/1 = 3.14; W/2 = 3.19; W/3 = 3.64). Moreover, the one-year PLDK group obtained significantly higher scores than the non-PLDK group. All other differences between PLDK groups failed to reach statistical significance (i.e., between W/0 and W/2, and between W/1 and W/2).

Analysis of covariance on the S subtest appears in Table 15. On the S subtest, again a significant method of teaching by PLDK interaction was obtained. A breakdown of this interaction indicated that the children taught to read in ITA were significantly superior on spelling achievement in comparison to those taught by TO in the two-year, and three-year PLDK groups only. The differences obtained between ITA and TO in the non-PLDK and one-year PLDK groups did not reach statistical significance. Among children taught to read in ITA, only one statistically significant difference was obtained on PLDK. The three-year PLDK group obtained significantly higher scores in comparison to those in the non-PLDK group. Among children taught reading in TO, however, both the non-PLDK and the one-year PLDK groups obtained significantly higher scores than the two-year, and three-year groups.

The analysis of covariance on total achievement appears in Table 16. On the total written language subtests scores, a significant method of teaching by PLDK interaction was obtained. Analyses of this interaction indicated that significant differences between the PLDK groups appeared

Table 13

Analysis of Covariance on the Word Discrimination Subtest of the Metropolitan Achievement Test

Source of Variation	Degree of Freedom	Sum of Squares Y	Sum of Squares X	Sum of Products XY	Corrected sum of Squares Y	Degree of Freedom	Mean Square	F Ratio	$F_{.90}$
A (ITA vs. TO)	1	3.3724	4.2909	0.2304	3.3631	1	3.3631	5.2149**	2.71
B(PLDK)	3	21.0965	5987.0959	351.4689	5.4525	3	1.8175	2.8182*	2.08
A x B	3	4.0644	683.3425	-37.7339	6.5105	3	2.1701	3.3650**	2.08
Errors	183	139.6200	30265.0207	820.5413	117.3736	182	0.6449		
Totals	190	168.1533	36939.7500	1134.5067		189			

*$p < .10$
**$p < .05$

Table 14

Analysis of Covariance on the Reading Subtest

of the Metropolitan Achievement Test

Source of Variation	Degree of Freedom	Sum of Squares Y	Sum of Squares X	Sum of Products XY	Corrected Sum of Squares Y	Degree of Freedom	Mean Square	F Ratio	$F_{.90}$
A(ITA vs. TO)	1	0.0002	4.2909	0.0333	0.0018	1	0.0018	0.0033	2.71
B(PLDK)	3	27.2351	5987.0959	373.0134	9.7337	3	3.2445	6.1251*	2.08
A x B	3	0.3644	683.3425	10.4194	0.3215	3	0.1071	0.2021	2.08
Errors	183	120.8577	30265.0207	860.1211	96.4134	182	0.5297		
Totals	190	148.4574	36939.75	1243.5872		189			

*p < .01

Table 15

Analysis of Covariance on the Spelling Subtest of the Metropolitan Achievement Test

Source of Variation	Degree of Freedom	Sum of Squares Y	Sum of Squares X	Sum of Products XY	Corrected Sum of Squares Y	Degree of Freedom	Mean Square	F Ratio	$F_{.90}$
A(ITA vs. TO)	1	7.1365	4.2909	-5.5338	7.5311	1	7.5311	4.2824**	2.71
B(PLDK)	3	9.7739	5987.0959	219.2172	1.7565	3	0.5855	0.3329	2.08
A x B	3	11.5319	683.3425	-46.8662	15.5239	3	5.1746	2.9424*	2.08
Errors	183	357.7033	30265.0207	1067.1614	320.0746	182	1.7586		
Totals	190	386.1456	36939.7500	1233.9786		189			

*p < .10
**p < .05

Table 16

Analysis of Covariance on the Total Written Language Subtest

Scores of the Metropolitan Achievement Test

Source of Variation	Degree of Freedom	Sum of Squares Y	Sum of Squares X	Sum of Products XY	Corrected Sum of Squares Y	Degree of Freedom	Mean Square	F Ratio	$F_{.90}$
A(ITA vs. TO)	1	46.2394	4.2909	-14.0857	50.8924	1	50.8924	3.0335*	2.71
B(PLDK)	3	537.4286	5987.0959	1762.5927	106.8619	3	35.6206	2.1232*	2.08
A x B	3	117.6914	683.3425	-90.3183	163.3690	3	54.4563	3.2459**	2.08
Errors	183	3842.2922	30265.0207	4886.4860	3053.3371	182	16.7765		
Totals	190	4543.6516	36939.7500	6544.6747		189			

$*p < .10$
$**p < .05$

only among children taught to read in ITA. The three-year PLDK group obtained significantly higher scores in comparison to the children in the non- and one-year PLDK groups (W/0 = 3.12; W/1 = 3.36; W/3 = 3.99). No significant differences occurred among the other PLDK groups who had been taught to read in ITA. Moreover, none of the differences among the PLDK groups who had been taught to read in TO reach significant difference; Finally, the ITA group obtained significantly higher achievement in comparison to the children learning to read in TO only within the two- and three-year PLDK groups.

Creative Thinking

The Torrance Tests of Creative Thinking were used as measures of creative thinking. Three scores on the Torrance Test were analyzed: verbal, figural, and total. Verbal scores comprised the mean of the fluency, flexibility, and originality scores. The mean of the fluency, flexibility, originality, and elaboration scores were analyzed for the Figural Subtests. Total scores were arrived at by summing the means of the Verbal and Figural Subtest raw scores. Means and standard deviations for the Torrance Tests appear in Table 17. The adjusted means for the analysis of covariance appear in Table 18.

The analysis of covariance for the Verbal subtest appears in Table 19. A significant method of teaching reading by PLDK interaction was obtained. Among children who had been taught reading in ITA, the three-year PLDK group obtained significantly higher scores than the non-PLDK, and the two-year PLDK groups. No significant difference, however, was obtained between the three-year PLDK, and the one-year PLDK groups (W/0 = 22.98; W/1 = 29.52; W/2 = 23.42; W/3 = 32.98). Furthermore, the one-year PLDK group obtained significantly higher scores than the non-PLDK, and the two-year PLDK groups. With the children taught reading in TO, the two-year and the three-year PLDK groups obtained significantly higher scores than the non-PLDK and the one-year PLDK groups (W/0 = 29.29; W/1 = 26.48; W/2 = 39.03; W/3 = 37.16). No significant differences occurred between the non-PLDK and one-year PLDK group, or between the two-year and three-year PLDK groups. Finally, in the non-PLDK and two-year PLDK groups, children learning to read in TO obtained significantly higher verbal scores than those learning to read in ITA.

The analysis of covariance on the Figural subtest scores appears in Table 20. Significant differences were obtained only on levels of PLDK. Subanalyses indicated that the three-year PLDK group obtained significantly higher scores than the other PLDK groups (W/0 = 15.75; W/1 = 18.69; W/2 = 16.21; W/3 = 22.11). Furthermore, the one-year PLDK group obtained significantly higher scores than both the non-PLDK and the two-year PLDK group. The difference between the non-PLDK and two-year PLDK group was not significant.

The analysis of covariance on the total scores for the Torrance Test of Creativity appears in Table 21. Again, the method of teaching by PLDK interaction was significant. Among children taught reading in ITA, the three-year PLDK group obtained significantly higher total scores than the

Table 17

Means and Standard Deviations by Treatment Group

for the Torrance Tests of Creativity

Treatment	N	Verbal		Figural		Total	
		$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S
Without PLDK							
With ITA	37	22.91	9.33	16.55	5.29	39.46	11.16
With TO	37	28.67	10.42	14.88	6.52	43.54	14.49
Total	74	25.79	10.24	15.71	5.96	41.50	13.00
One year PLDK							
With ITA	31	29.23	7.66	18.68	6.07	47.90	10.58
With TO	31	25.54	8.91	18.58	5.70	44.12	12.12
Total	62	27.38	8.45	18.63	5.84	46.01	11.44
Two years PLDK							
With ITA	7	22.95	8.66	15.50	3.23	38.45	9.66
With TO	7	38.05	14.27	16.79	3.48	54.84	13.82
Total	14	30.50	13.78	16.14	3.29	46.64	14.27
Three years PLDK							
With ITA	13	35.02	11.65	21.85	7.09	56.87	16.14
With TO	13	40.80	10.06	22.92	6.09	63.72	12.44
Total	26	37.91	11.06	22.38	6.50	60.30	14.54
Totals							
With ITA	88	26.93	10.00	18.00	5.98	44.92	13.15
With TO	88	30.10	11.44	17.52	6.52	47.62	15.05
Grand Total	176	28.52	10.83	17.76	6.24	46.27	14.16

Table 18

Adjusted Means by Treatment Group

for the Torrance Tests of Creativity

Treatment	N	Verbal	Figural	Total
Without PLDK				
With ITA	37	22.98	16.55	39.47
With TO	37	29.29	14.94	43.64
Total	74	26.14	15.75	41.55
One Year PLDK				
With ITA	31	29.52	18.70	47.95
With TO	31	26.48	18.67	44.27
Total	62	28.00	18.69	46.11
Two years PLDK				
With ITA	7	23.42	15.55	38.53
With TO	7	39.03	16.88	55.00
Total	14	31.23	16.21	46.76
Three years PLDK				
With ITA	13	32.98	21.65	56.54
With TO	13	37.16	22.57	63.13
Total	26	35.07	22.11	59.83
Totals				
With ITA	88	26.79	17.98	44.90
With TO	88	30.24	17.54	47.64
Grand Total	176	28.52	17.76	46.27

Table 19

Analysis of Covariance for the

Verbal Torrance Tests of Creativity

Source of Variation	Degree of Freedom	Sum of Squares Y	Sum of Squares X	Sum of Products XY	Corrected Sum of Squares Y	Degree of Freedom	Mean Square	F Ratio	F.90
A(ITA vs TO)	1	443.5157	50.2044	149.2196	437.7789	1	437.7789	4.6620*	2.71
B(PLDK)	3	2979.7267	3960.5280	3136.1732	2726.0895	3	908.6965	9.6770**	2.08
A x B	3	1394.8098	416.5015	-191.5306	1401.2487	3	467.0829	4.9741**	2.08
Errors	168	15702.1601	62447.7661	1130.2057	15681.7052	167	93.9024		
Totals	175	20520.2123	66874.1591	4224.0679		174			

$*p < .05$
$**p < .01$

Table 20

Analysis of Covariance for the

Figural Torrance Tests of Creativity

Source of Variation	Degree of Freedom	Sum of Squares Y	Sum of Squares X	Sum of Products XY	Corrected Sum of Squares Y	Degree of Freedom	Mean Square	F Ratio	$F_{.90}$
A(ITA vs. TO)	1	9.9037	50.2044	22.2983	8.8471	1	8.8471	.2562	2.71
B(PLDK)	3	949.6237	3960.5280	1505.0510	849.2178	3	283.0726	8.1975*	2.71
A x B	3	55.0934	416.5015	85.1520	51.1276	3	17.0425	.4935	
Errors	168	5803.2948	62447.7661	1510.6948	5766.7491	167	34.5314		
Totals	175	6817.9156	66874.1591	3123.1961		174			

*$p < .01$

Table 21

Analysis of Covariance on Total Scores

of the Torrance Tests of Creativity

Source of Variation	Degree of Freedom	Sum of Squares Y	Sum of Squares X	Sum of Products XY	Corrected Sum of Squares Y	Degree of Freedom	Mean Square	F Ratio	$F_{.90}$
A(ITA vs. TO)	1	319.9774	50.2044	-126.7451	330.1769	1	330.1769	2.0896	2.71
B(PLDK)	3	6805.7710	3960.5280	4641.6816	6130.0899	3	2043.3633	12.9320**	2.08
A x B	3	1454.1884	416.5015	276.8718	1431.1367	3	477.0455	3.0191*	2.08
Errors	168	26491.9643	62447.7661	2557.3044	26387.2399*	167	158.0074		
Totals	175	35071.9011	66874.1591	7349.1127		174			

*$p < .05$
**$p < .01$

non-PLDK, one-year PLDK, and the two-year PLDK groups. Furthermore, the one-year PLDK group obtained significantly higher scores than both the non-PLDK group, and the two-year PLDK group (W/0 = 39.47; W/1 = 47.95; W/2 = 38.53; W/3 = 56.54). No significant difference was obtained between the non-PLDK and the two-year PLDK groups. With children taught reading in TO, the three-year PLDK group again obtained significantly higher scores than the non-PLDK, the one-year PLDK, and the two-year PLDK groups (W/0 = 43.64; W/1 = 44.27; W/2 = 55.00; W/3 = 63.13). Furthermore, the two-year PLDK group obtained significantly higher total scores than the non-PLDK, and the one-year PLDK groups. No significant difference was obtained between the non-PLDK and the one-year PLDK groups. Finally, significant differences favoring children taught reading in TO were found within the non-PLDK, the two-year PLDK, and the three-year PLDK groups.

Discussion

The results after three years of experimental treatment lend partial confirmation to the experimental hypotheses. In this study, the ITA and the PLDK treatment approaches in combination appeared to be the most facilitating to the behavioral development of disadvantaged children.

In the area of intellectual development, significant increases in IQ scores occurred only among the children who received PLDK in combination with ITA. These results supported the predictions that PLDK, in combination with ITA, would be the most effective treatment combination for increasing verbal intelligence. Furthermore, within the ITA reading group, the magnitude of IQ gain was related directly to the length of PLDK training. However, among the children taught to read in TO, the results obtained on the S-B failed to support our predictions on the efficacy of the PLDK treatment.

Data from the tests of language abilities also provided support for the stated hypotheses. In the ITA group, children who received two- and three-years of PLDK made significantly higher LA gains on the ITPA than those in the non-PLDK and one-year PLDK groups. Furthermore, within the TO group, the three-year PLDK children obtained higher scores in comparison to the other PLDK groups. On the PLPI, children with two- and three-years of PLDK obtained the highest oral language scores. Furthermore, children with one-year of PLDK obtained higher scores than those without PLDK. Thus, the results on the PLPI, and to a lesser extent on the ITPA, suggest that the length of the PLDK program was related to magnitude of improvement in language development. The support for the prediction that ITA and PLDK combined would be most facilitating was given support only on the ITPA-LA analysis.

The results on school achievement supported, to some degree, the prediction that reading experience in ITA would lead to significantly higher increases in written language achievement. The achievement differences between the ITA and TO approaches were obtained on tests of word recognition and spelling. Experience in ITA did not, however, lead to superior performance on a subtest of reading comprehension. Since the principal focus of the early elementary grades is upon the development of word recognition skills, failure to obtain results favoring ITA on reading comprehension appear to be less consequential. The prediction that PLDK experience would facilitate the development of academic achievement was given some support, principally from the results of the reading comprehension subtest. Furthermore, among the children who learned to read in ITA, the two-year and three-year PLDK groups tended to demonstrate superior performance on a number of subtests as well as on total achievement.

The analyses from the tests of creative thinking also give some support to our predictions. In the TO group, the length of PLDK experience was related directly to superior performance on total test scores (i.e., W/0 < W/1 < W/2 < W/3). Within the ITA group, however, this relationship was less consistent, due to finding that the one-year PLDK pupils were superior to those in the two-year PLDK group. The three-year PLDK group was superior on all analyses, irrespective of reading treatment. Finally, the prediction that PLDK in combination with ITA would be most facilitating to the development of creative thinking was not supported by our results.

It appears that exposure to the experimental reading and language development programs used in this study had some salutary effects upon the academic, linguistic, and cognitive development of disadvantaged children. These findings, however, must be evaluated within the context of the following qualifications:

1. Administrative considerations dictated that the treatments be provided to intact classrooms. Therefore, differential effectiveness between teachers was free to operate. Since a small number of teachers were represented in the two- and three-year PLDK groups, this factor could have served to bias our results. However, teacher effectiveness as a source of bias could have served both to minimize, or maximize the potential effects of the experimental treatments.

2. Children in the three-year PLDK group were superior on pretest IQ performance and appeared to have enjoyed an advantaged over other groups in socioeconomic status. Although analysis of covariance was used as a control for differences on IQ, it is conceivable that these children also possessed higher motivation for school related tasks. It should be noted, however, that the results of a number of analyses indicated that the children who received less PLDK experience also made some gains on language, creative thinking, and intelligence. These latter groups did not appear to be biased on the attributes of pretest intelligence or socioeconomic status.

3. It is possible that some of the measuring instruments were not particularly sensitive to the influences of the experimental treatments. This was especially the case with the ITPA which often did not have enough "top" for the children completing the third grade. (In the follow-up study, attempts are being made to include some language measures of greater sensitivity.)

4. The results of the reading analyses provide only qualified support for the use of ITA, _per se_, as an approach to teaching beginning reading. Our comparisons tested the efficacy of two sets of reading materials which differed both in story content and reading experiences, as well as in their symbol or writing system. Thus, our results should be viewed as a comparison of the _Early-to-Read_ i/t/a series with the _Basic Reading_ series, published by Houghton Mifflin---not a global comparison of ITA vs TO.[7]

5. The influence of the extra incentives and novelty associated with participation in the experimental treatments could have influenced the obtained results. During the 1965-66 school year, the project staff launched the Cooperative Reading Project (Dunn, Neville, Bailey, Pochanart, & Pfost, 1967). In the Cooperative Reading Project, a concerted effort was made to control the influence of this Hawthorne Effect. The results after two years of treatment have been less marked for both the ITA and PLDK treatments. The magnitude of the Hawthorne Effect upon our results is difficult to assess.

Even within the context of the above limitations, the results of the PLDK and the _Early-to-Read_ i/t/a programs after three years appear to suggest that these instructional materials possess some potential for altering the academic and cognitive development of disadvantaged children.

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[7] The authors are indebted to Professor John A. Downing for providing us with this perceptive analysis.

CHAPTER IV

THE USE OF DIFFERENT TEACHING PERSONNEL IN STIMULATING ORAL LANGUAGE DEVELOPMENT

The purpose of this aspect of the study was to evaluate the effectiveness of the PLDK taught by different kinds of instructional personnel. All of the groups in the following analyses were taught reading using the conventional basal reading approach in TO. In the first year of this study, Dunn and Mueller (1966) found that there were no basic differences in achievement, intellectual development, or language development between classes of children taught as an intact group in contrast to those divided into two smaller groups. Based upon these findings, the different class size groups were combined for the second year analysis (Dunn, et al., 1967), and for the analyses reported in this chapter. In the interim report (Dunn, et al., 1967), the efficacy of teaching the PLDK lessons by a regular teacher, a team approach utilizing the regular teacher and a visiting teacher, and an approach which used a regular teacher plus a community volunteer, were investigated. The results of these analyses indicated that the different types of instructional personnel were equally effective in teaching the PLDK lessons.

Due to subject attrition in the visiting teacher and community volunteer groups, the final analyses contrasted only the regular teacher, and a team teaching approach which utilized the regular teacher in combination with a visiting teacher. Only those subjects who had one, two, and three years of PLDK were included in the analysis. It was predicted that there would be no difference in the relative effectiveness of different instructional personnel in teaching the PLDK lessons upon intellectual development, language development, creative thinking, and school achievement.

A selected sample of 128 children was used in the statistical analyses. For this aspect of the study, the subjects were drawn from 13 classes. The five classes constituting the regular teaching group overlapped with the analyses reported in Chapter III. The classes in the regular teaching group included two in one-year PLDK, two classes in two-year PLDK, and one in three-year PLDK. The classes in the team group consisted of four in one-year PLDK, two in two-year PLDK, and two in three-year PLDK. The sample was constructed by deleting subjects who did not meet the socioeconomic status criteria for disadvantaged children (see p. 11), and then by randomly selecting proportional samples of subjects from each of the three treatment groups. An attempt was also made to make the number of boys and girls proportional within each treatment group. The research design and number of subjects, including boys and girls, by treatment of groups appear in Figure 3. Analysis of variance on pretest data indicated the presence of significant differences between the treatment groups on CA, IQ, and LA (see Tables 22 and 23). The subjects in the three-year PLDK with regular teaching were significantly superior to the other treatment groups on IQ. Moreover, the one- and two-year PLDK children were slightly higher on chronological age. Statistical adjustment by means of analysis of covariance for differences between groups on S-B pretest IQ performance was made on school achievement, PLPI performance, and creative thinking. Basic socioeconomic status data indicated that the educational level of the parent, the number of family members, and the quality of housing were relatively homogeneous (see Table 24). The two-year PLDK group and the regular teaching groups, however, appear to be slightly higher on the indices of housing and education.

Amount of Oral Language Stimulation

Method of Teaching PLDK	with 1 year	with 2 years	with 3 years	
Regular	Boys = 18 Girls = 20 Total = 38	Boys = 6 Girls = 6 Total = 12	Boys = 9 Girls = 5 Total = 14	64
Team	Boys = 18 Girls = 20 Total = 38	Boys = 6 Girls = 6 Total = 12	Boys = 9 Girls = 5 Total = 14	64
	76	24	28	

Fig. 3. Research design and number of subjects used in the statistical analyses.

Results for this aspect of the study are reported below for each of the following four areas of evaluation: intellectual functioning, language abilities, school achievement, and creative thinking. The results were analyzed by means of a 3 x 2 factoral analysis of variance (Lindquist, 1953), as portrayed in Figure 3. Complete test data by subjects on all variables are presented in Appendix C.

Intellectual Ability

Intellectual ability was evaluated through the use of the S-B and PPVT. The pretest, posttest, and gain scores on the S-B and PPVT IQ are reported in Table 25. Table 26 contains the analysis of variance on IQ gains on the S-B. The results of this analysis indicate that no significant differences were obtained on type of instructional personnel, levels of PLDK, or on the interaction between these two variables.

Table 22

Summary of Pretest Data on the Selected Samples Used for the Third Year Analyses

Group	N	CA		SB-IQ		PPVT-IQ		ITPA-LA	
		$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S
One year PLDK									
Regular teaching	38	79.03	6.97	83.89	14.39	78.37	18.40	63.26	9.11
Team teaching	38	76.00	6.46	84.63	12.26	69.53	24.75	62.95	8.62
Total	76	77.51	6.84	84.26	13.28	73.95	22.11	63.11	8.81
Two years PLDK									
Regular teaching	12	80.92	6.43	84.67	10.76	74.50	26.88	69.25	15.41
Team teaching	12	76.00	4.63	79.25	12.73	73.58	24.67	61.00	12.08
Total	24	78.46	6.03	81.96	11.86	74.04	25.24	65.12	14.18
Three years PLDK									
Regular teaching	14	75.50	4.55	101.71	17.60	97.43	15.72	73.00	8.83
Team teaching	14	76.93	5.37	76.86	12.35	64.71	19.94	57.21	9.81
Total	28	76.21	4.94	89.28	19.56	81.07	24.24	65.11	12.19
Total									
Regular teaching	64	78.61	6.58	87.94	16.12	81.81	21.16	66.52	11.11
Team teaching	64	76.20	5.86	81.92	12.63	69.23	23.58	61.33	9.71
Totals	128	77.41	6.32	84.93	14.73	75.52	23.19	63.92	10.71

Table 23

Analysis of Variance of Pretest Data by Treatment Group

Variable	Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio	$F_{.95}$
CA	Between	5	400.5560	80.1112	2.0962	2.29
	Within	122	4674.3190	38.3140		
	Total	127	5074.8750			
SB-IQ	Between	5	5288.4578	1057.6915	5.7906*	2.29
	Within	122	22283.9094	182.6549		
	Total	127	27572.3672			
PPVT-IQ	Between	5	10085.4113	2017.0822	4.2269*	2.29
	Within	122	58218.5184	477.2009		
	Total	127	68303.9297			
ITPA-LA	Between	5	2279.3483	455.8696	4.5224*	2.29
	Within	122	12297.8705	100.8022		
	Total	127	14577.2188			

*$p < .01$

Table 24

Basic Home and Family Information on the Selected Samples

Group	Percentage of Negro Race	Percentage of Families on Welfare	Average No. of Persons per family	Mean of Educ. Level of Parent*	Housing Conditions			
					Extremely poor	Moderately poor	Fair	Good
One Year PLDK								
Regular	91.89	9.37	8.06	10.07	12.12	24.24	42.42	21.21
Team	100.00	16.21	7.58	9.89	24.32	10.81	64.86	0.00
Total	94.73	13.04	7.81	9.97	18.57	17.14	54.28	10.00
Two Years PLDK								
Regular	83.33	27.27	5.92	10.64	0.00	16.66	33.33	50.00
Team	100.00	0.00	7.09	11.36	8.33	25.00	66.66	0.00
Total	91.66	14.28	6.48	11.00	4.16	20.83	50.00	25.00
Three Years PLDK								
Regular	57.14	7.69	7.25	10.69	0.00	0.00	30.76	69.23
Team	100.00	21.42	8.43	8.62	46.15	46.15	0.00	7.69
Total	75.57	14.81	7.88	9.65	23.07	23.07	15.38	38.46
Totals								
Regular	81.25	12.50	7.43	10.34	6.89	17.24	37.93	37.93
Team	100.00	14.75	7.69	9.88	25.80	20.96	51.61	1.61
Grand Total	90.62	13.67	7.56	10.10	16.66	19.16	45.00	19.16

* The highest level of education of either parent was used.

Table 25

Means and Standard Deviations for Intellectual, Language Development Pre, Post and Gain Scores

Treatment Group	N		SB-IQ			PPVT-IQ			ITPA-LA		
			Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
One year PLDK											
Regular teaching	38	$\bar{X}$	83.89	88.87	4.97	78.37	82.82	4.45	63.26	87.97	24.71
		S	14.39	15.68		18.40	15.31		9.11	11.66	
Team teaching	38	$\bar{X}$	84.63	86.03	1.39	69.53	87.05	17.53	62.95	88.39	25.45
		S	12.26	12.51		24.75	17.19		8.62	13.39	
Total	76	$\bar{X}$	84.26	87.45	3.18	73.95	84.93	10.99	63.11	88.18	25.08
		S	13.28	14.16		22.11	16.31		8.81	12.48	
Two Years PLDK											
Regular teaching	12	$\bar{X}$	84.67	90.50	5.83	74.50	82.25	7.75	69.25	93.50	24.25
		S	10.76	13.18		26.88	12.43		15.41	15.54	
Team teaching	12	$\bar{X}$	79.25	85.33	6.08	73.58	82.58	9.00	61.00	84.42	23.42
		S	12.73	13.30		24.67	14.18		12.08	14.85	
Total	24	$\bar{X}$	81.96	87.92	5.96	74.04	82.42	8.38	65.12	88.96	23.83
		S	11.86	13.21		25.24	13.04		14.18	15.58	
Three years PLDK											
Regular teaching	14	$\bar{X}$	101.71	104.86	3.14	97.43	102.57	5.14	73.00	108.07	35.07
		S	17.60	17.17		15.72	12.72		8.83	6.72	

-continued

Table 25 - continued

Means and Standard Deviations for Intellectual, Language Development
Pre, Post and Gain Scores

Treatment Group	N		SB-IQ			PPVT-IQ			ITPA-LA		
			Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
Team teaching	14	$\bar{X}$	76.86	85.43	8.57	64.71	82.86	18.14	57.21	85.07	27.86
		S	12.35	11.08		19.94	8.83		9.81	14.63	
Total	28	$\bar{X}$	89.29	95.14	5.86	81.07	92.71	11.64	65.11	96.57	31.46
		S	19.56	17.29		24.25	14.70		12.18	16.19	
Totals											
Regular teaching	64	$\bar{X}$	87.94	92.67	4.73	81.81	87.03	5.22	66.52	93.41	26.89
		S	16.12	16.68		21.16	16.33		11.11	14.04	
Team teaching	64	$\bar{X}$	81.92	85.77	3.84	69.23	85.30	16.06	61.33	86.92	25.59
		S	12.63	12.17		23.58	15.14		9.71	13.83	
Total	128	$\bar{X}$	84.93	89.22	4.29	75.52	86.16	10.64	63.92	90.16	26.24
		S	14.73	14.95		23.19	15.71		10.71	14.25	

Table 26

Analysis of Variance of IQ Gains as Measured by the Stanford-Binet Intelligence Scale

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio	$F_{.90}$
A (Regular vs. Team)	1	25.3828	25.3828	0.2645	2.75
B (PLDK)	2	228.4966	114.2483	1.1907	2.35
A x B	2	424.6463	212.3231	2.2128	2.35
Error	122	11705.7790	95.9490		
Total	127	12384.3047			

The analysis of variance on PPVT-IQ gains is presented in Table 27. In the PPVT analysis, subjects who received PLDK under a team teaching situation made significantly greater PPVT-IQ gains than those taught under a regular teaching approach (Team = 16.06; Regular = 5.22). Differences between levels of PLDK and the interaction between method of teaching and PLDK levels failed to reach statistical significance.

Table 27

Analysis of Variance of IQ Gains as Measured by the Peabody Picture Vocabulary Test

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio	$F_{.90}$
A (Regular vs. Team)	1	3762.7813	3762.7813	9.3501*	2.75
B (PLDK)	2	160.4283	80.2141	0.1993	2.35
A x B	2	680.7121	340.3560	0.8457	2.35
Error	122	49096.5471	402.4307		
Total	127	53700.4688			

*$p < .01$

Language Abilities

Language abilities were measured by the ITPA and the PLPI. Means and standard deviations on ITPA-LA appear in Table 25. Results from the analysis of variance on LA gains are presented in Table 28. The results of this analysis produced a significant effect for levels of PLDK. The three-year PLDK children obtained significantly higher LA gains than both the one-year and the two-year PLDK groups. There was no significant difference between the regular and team methods of teaching the PLDK lessons. The interaction between type of instructional personnel and PLDK was not significant.

The basic data on posttest scores of the Peabody Language Production Inventory are found in Table 29. Due to the pretest IQ differences found between treatment groups, analysis of covariance

Table 28

Analysis of Variance of Language Age Gains as Measured by the Illinois Test of Psycholinguistic Abilities

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio	$F_{.90}$
A (Regular vs. Team)	1	53.8203	53.8203	0.5001	2.75
B (PLDK)	2	1005.6681	502.8340	4.6725*	2.35
A x B	2	324.9836	162.4918	1.5099	2.35
Error	122	13129.0202	107.6149		
Total	127	14513.4922			

*$p < .05$

Table 29

Means and Standard Deviations by Treatment Group on the Peabody Language Production Inventory

Treatment Group	N	$\overline{X}$	S
One year PLDK			
Regular teaching	32	73.38	9.35
Team teaching	32	74.19	8.89
Total	64	73.78	9.06
Two years PLDK			
Regular teaching	12	84.75	7.00
Team teaching	12	76.17	10.25
Total	24	80.46	9.89
Three years PLDK			
Regular teaching	14	86.14	6.84
Team teaching	14	78.50	8.50
Total	28	82.32	8.51
Totals			
Regular teaching	58	78.81	10.34
Team teaching	58	75.64	9.11
Grand Total	116	77.22	9.83

was used. The adjusted means for the analysis of covariance are found in Table 30. The analysis of covariance on PLPI scores is found in Table 31. A significant effect was found for levels of PLDK. The three-year and two-year PLDK groups obtained significantly higher PLPI scores than the one-year PLDK group. There was no significant difference between the two- and three-year PLDK groups. No significant difference was found on either type of instructional personnel or the interaction between methods of teaching and levels of PLDK.

Table 30

Adjusted Means by Treatment Group for the

Peabody Language Production Inventory

Treatment Group	N	$\bar{X}$
One year PLDK		
Regular teaching	32	73.50
Team teaching	32	74.20
Total	64	73.85
Two years PLDK		
Regular teaching	12	84.84
Team teaching	12	77.00
Total	24	80.92
Three years PLDK		
Regular teaching	14	83.87
Team teaching	14	79.66
Total	28	81.77
Totals		
Regular teaching	58	78.35
Team teaching	58	76.10
Grand Total	116	77.22

Table 31

Analysis of Covariance on the Peabody Language Production Inventory

Source of Variation	Degree of Freedom	Sum of Squares Y	Sum of Squares X	Sum of Products XY	Corrected Sum of Squares Y	Degree of Freedom	Mean Square	F Ratio	$F_{.90}$
A(Regular vs. Team)	1	291.8621	1291.1120	613.8621	138.0504	1	138.0504	1.8689	2.76
B(PLDK)	2	1737.1694	730.0019	423.7790	1629.0062	2	814.5031	11.0269*	2.36
A x B	2	569.6350	3220.6350	1005.5159	339.8496	2	169.9248	2.3004	2.36
Errors	110	8513.5060	20323.8632	2809.4465	8125.1454	109	73.8649		
Totals	115	11112.1725	25565.6121	4852.6035		114			

$^{*}p < .01$

School Achievement

Appraisal of school achievement was made by means of the Metropolitan Achievement Test. Total grade equivalent scores from the five written language subtests were employed in the statistical analyses. These MAT subtests include WK, WD, R, S, and L. Means and standard deviations on these scores by treatment groups are presented in Table 32. The adjusted means for the analysis of covariance appear in Table 33.

The analysis of covariance on total scores of the Metropolitan Achievement Test appears in Table 34. Inspection of Table 34 indicates that, on total achievement, none of the factors were found to be statistically significant. In other words, there was no significant difference found between regular versus team teaching, PLDK, or the interaction of type of instruction and PLDK. Thus, different patterns of teaching (i.e., regular versus team) for teaching PLDK lessons did not lead to any significant differences on the factor of academic achievement.

Creative Thinking

Means and standard deviations on total scores of the Torrance Tests of Creative Thinking appear in Table 35.[8] Adjusted means appear in Table 36. The reader should note that fewer subjects are included in each of the treatment groups than was the case in previous analyses. This resulted from the failure on the part of examiners to obtain complete test scores on some of the subjects.

Results of the analysis of covariance on total scores on the Torrance Test of Creativity appear in Table 37. The only significant effects were obtained on levels of PLDK. As was true in the primary analysis (Chapter III), the three-year PLDK children obtained significantly higher scores than both the two-year and one-year PLDK groups. Moreover, children receiving two-years of PLDK obtained significantly higher scores than those in the one-year PLDK group. No significant difference was obtained between type of instructional personnel teaching the PLDK lessons, and the type of instructional personnel by PLDK interaction was not significant.

This aspect of the study evaluated the effect of different types of instructional personnel on teaching the PLDK response. The effectiveness of the various treatments was evaluated in terms of school achievement, language development, creative thinking, and intellectual development. Except in the case of PPVT IQ gains, different types of teaching personnel appear to be equally effective in teaching the PLDK lessons. These findings have remained consistent across all three years of the PLDK treatments (Dunn & Mueller, 1966; Dunn *et al*., 1967). The practical implications from these findings are that the regular classroom teacher can be as effective in conducting the oral stimulation lessons as a team teaching approach involving the regular teacher plus an itinerant visiting teacher (oral language developmentalist).

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[8] The method of deriving total scores is discussed on p.38, Chapter III.

Table 32

Means and Standard Deviations of Scores on Subtests

of the Metropolitan Achievement Test

Treatment Group	N	L		WK		WD		R		S		A	
		$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S
One year PLDK													
Regular teaching	38	2.42	1.43	3.10	1.01	3.02	0.97	3.03	1.06	3.37	1.43	2.99	1.10
Team teaching	38	2.24	1.13	2.85	0.68	2.99	0.80	2.89	0.81	3.16	1.33	2.82	0.85
Total	76	2.33	1.28	2.97	0.86	3.00	0.88	2.96	0.94	3.27	1.38	2.91	0.98
Two years PLDK													
Regular teaching	12	2.24	0.96	2.96	0.53	2.94	0.43	3.08	0.52	3.27	0.99	2.90	0.50
Team teaching	12	1.99	1.23	3.00	0.70	3.04	0.86	2.89	0.64	3.22	1.38	2.83	0.89
Total	24	2.12	1.09	2.98	0.61	2.99	0.66	2.98	0.58	3.25	1.17	2.86	0.71
Three years PLDK													
Regular teaching	14	3.81	0.88	3.55	0.66	3.66	0.72	3.96	0.58	3.61	0.96	3.72	0.62
Team teaching	14	2.04	1.00	2.64	0.73	2.67	0.65	2.65	0.64	2.64	0.90	2.53	0.67
Total	28	2.93	1.29	3.10	0.83	3.16	0.84	3.30	0.90	3.12	1.03	3.12	0.87
Totals													
Regular teaching	64	2.69	1.37	3.17	0.89	3.14	0.88	3.24	0.96	3.40	1.26	3.13	0.96
Team teaching	64	2.15	1.11	2.83	0.69	2.93	0.78	2.84	0.74	3.06	1.26	2.76	0.82
Grand Total	128	2.42	1.27	3.00	0.81	3.04	0.83	3.04	0.88	3.23	1.27	2.95	0.91

Table 33

Adjusted Means for the Total Written Language Subtest Scores on the Metropolitan Achievement Test

Treatment Group	N	$\overline{X}$
One year PLDK		
Regular teaching	38	3.01
Team teaching	38	2.83
Total	76	2.92
Two years PLDK		
Regular teaching	12	2.90
Team teaching	12	2.95
Total	24	2.93
Three years PLDK		
Regular teaching	14	3.36
Team teaching	14	2.70
Total	28	3.03
Totals		
Regular teaching	64	3.07
Team teaching	64	2.82
Grand Total	128	2.95

Table 34

Analysis of Covariance on the Total Written Language Subtest of the Metropolitan Achievement Test

Source of Variation	Degree of Freedom	Sum of Squares Y	Sum of Squares X	Sum of Products XY	Corrected Sum of Squares Y	Degree of Freedom	Mean Square	F Ratio	$F_{.90}$
A(Regular vs. Team)	1	109.5200	1,158.0078	356,1249	44.5061	1	44.5061	2.5885	2.75
B(PLDK)	2	28.9084	776.9576	147.2489	6.1816	2	3.0908	0.1797	2.35
A x B	2	151.1779	3,353.4924	677.2707	40.9810	2	20.4905	1.1917	2.35
Errors	122	2,332.9609	22,283.9094	2,372.3227	2,080.4058	121	17.1934		
Totals	127	2,622.5672	27,572.3672	3,552.9672		126			

Table 35

Means and Standard Deviations for Total Scores on the Torrance Tests of Creativity

Treatment Group	N	$\overline{X}$	S
One year PLDK			
Regular teaching	27	41.7807	10.7489
Team teaching	27	44.0092	15.2024
Total	54	42.8950	13.0889
Two years PLDK			
Regular Teaching	10	53.6430	12.8676
Team teaching	10	41.1750	9.6776
Total	20	47.4090	12.7946
Three years PLDK			
Regular teaching	13	63.7176	12.4445
Team teaching	13	52.0253	9.1576
Total	26	57.8715	16.2682
Totals			
Regular teaching	50	49.8568	14.8149
Team teaching	50	45.5260	15.3342
Grand total	100	47.6917	15.1574

Table 36

Adjusted Means for Total Scores

on the Torrance Tests of Creativity

Treatment Group	N	$\bar{X}$
One year PLDK		
Regular teaching	27	42.44
Team teaching	27	43.81
Total	54	43.12
Two years PLDK		
Regular teaching	10	53.50
Team teaching	10	42.95
Total	20	48.22
Three years PLDK		
Regular teaching	13	59.44
Team teaching	13	54.10
Total	26	56.77
Totals		
Regular teaching	50	49.07
Team teaching	50	46.31
Grand Total	100	47.69

Table 37

Analysis of Covariance on Total Scores of the Torrance Tests of Creativity

Source of Variation	Degree of Freedom	Sum of Squares Y	Sum of Squares X	Sum of Products XY	Corrected Sum of Squares Y	Degree of Freedom	Mean Square	F Ratio	$F_{.90}$
A(Regular vs. Team)	1	468.7658	998.5600	684.1716	179.7170	1	179.7170	1.0488	2.76
B(PLDK)	2	3938.4051	768.9253	1428.2844	3193.3474	2	1596.6737	9.3182*	2.36
A x B	2	1264.1495	3668.5152	1833.4350	539.2466	2	269.6233	1.5735	2.36
Errors	94	17073.8788	18287.3595	4562.5826	15935.5428	93	171.3499		
Totals	99	22745.1992	23723.3600	8508.4736		98			

*p < .01

CHAPTER V

SUMMARY AND CONCLUSIONS

Inner-city disadvantaged children encounter many difficulties in achieving school success. At this time, the need for special intervention techniques to help them attain greater success in school is clearly evident, but the areas of intervention and the techniques required are less clear. The investigators in this study assumed that oral language development and reading were the two initial areas where special intervention might lead to improved educational attainment.

Purpose

The purpose of this three-year Cooperative Language Development Project was to examine the efficacy of an oral language development program and an experimental reading program in improving the academic achievement, language development, intellectual functioning, and the creative thinking of disadvantaged children in the primary grades. This monograph reports on the results after three years of intervention.

The experimental treatments were: 1) an oral language program consisting of experimental versions of the Level #1 of the Peabody Language Development Kits (PLDK) for the first grade, Level #2 PLDK for the second grade, and Level #3 PLDK for the third grade, and 2) an experimental reading ITA approach utilizing the Early-to-Read i/t/a program (Mazurkiewicz & Tanyzer, 1963), followed by the Basic Reading series (McCracken & Walcutt, 1963). In contrast to the experimental groups, a control group used a conventional basal reading program (McKee et al., 1963) in traditional orthography, and received no organized oral language stimulation.

The objectives of the study were twofold: 1) in a primary analysis, to evaluate the effectiveness of the ITA and PLDK, and 2) in a secondary analysis, to evaluate the relative effectiveness of using different instructional personnel to teach the daily PLDK exercises. It was predicted that: 1) the use of the ITA alone in beginning reading would enhance reading ability; 2) the use of PLDK alone would raise intellectual quotients, as well as enhancing oral language development, creative thinking, and school achievement; 3) the use of ITA plus PLDK would be even more effective in fostering verbal intelligence, language development, creative thinking, and school achievement; 4) the length of PLDK training would be related directly to the magnitude of growth in verbal intelligence, language ability, creative thinking, and academic achievement (i.e., one year < two years < three years); and 5) no significant differences in effectiveness would develop among different personnel arrangements for teaching the PLDK lessons.

Subjects

Experimental subjects were drawn from eight schools and control subjects from six schools. These schools served areas where the majority of children are classified as disadvantaged. There were 31 first grade classrooms in the experimental treatments during the first year (1964-65), and 30 second grade classrooms during the second year (1965-66). At the end of the first year (1964-65), complete pretest and posttest data were available on 732 subjects--630 in the experimental treatments and 102 in the control group (Dunn & Mueller, 1966). For the second year (1965-66), complete data were available on 384 subjects--343 experimental and 41 control subjects (Dunn et al., 1967). Following the final year, nearly complete data were available on 234 subjects--191 experimental and 43 control subjects. The final primary statistical analyses were conducted on 196 children. A total of 128 subjects was used in the secondary analysis to compare the relative effectiveness of the regular teacher versus a team-teaching approach in teaching the daily PLDK exercises.

The effectiveness of the programs was evaluated by tests of academic achievement, creative thinking, language development, and intellectual development. School achievement was evaluated by means of the Metropolitan Achievement Test, Elementary Battery (Durost _et al_., 1959). The language measures comprised the Illinois Test of Psycholinguistic Abilities (McCarthy & Kirk, 1961) and the Peabody Language Production Inventory (Nelson, 1964). The Stanford-Binet Intelligence Scale (Terman & Merrill, 1960) and the Peabody Picture Vocabulary Test (Dunn, 1965) were used to evaluate intellectual growth. Creative thinking was assessed by means of the Torrance Tests of Creative Thinking (Torrance, 1966).

Procedures

As a result of the findings from previous years, several groups were combined for the third year analyses. Two analyses were conducted. In the primary analysis, the performance of the following groups was compared:

1. reading in ITA without PLDK;
2. reading in ITA plus PLDK for one year taught by the classroom teacher;
3. reading in TO without PLDK;
4. reading in TO plus PLDK for one year taught by the classroom teacher;
5. reading in ITA plus two years of PLDK taught by the classroom teacher;
6. reading in TO plus two years of PLDK taught by the classroom teacher;

7. reading in ITA plus PLDK for three years taught by the classroom teacher; and
8. reading in TO plus PLDK for three years taught by the classroom teacher.

In the secondary analysis involving type of instructional personnel, only groups of children taught the PLDK program were included. These groups comprised the following:

1. reading in TO plus PLDK for one year taught by the regular classroom teacher;
2. reading in TO plus PLDK for one year taught by a team teaching approach;
3. reading in TO plus PLDK for two years taught by the regular teacher;
4. reading in TO plus PLDK for two years taught by a team teaching approach;
5. reading in TO plus PLDK for three years taught by the regular teacher; and
6. reading in TO plus PLDK for three years taught by a team teaching approach.

The experimental teachers were given a number of incentives which included a small salary supplement, in-service training sessions, supervision and observation, and additional materials. The control teachers had no stimulation from the project staff other than knowing that the progress of their children was being monitored.

Results

Analysis of variance or covariance (to control for pretest IQ differences among groups) was used to contrast treatments, with _t_ tests employed to contrast differences between sub-groups. The results of the analyses examining the effectiveness of the ITA and PLDK were as follows:

1. On Stanford-Binet IQ, the combination of ITA and PLDK resulted in the greatest gains. Both the two- and three-year PLDK groups made significantly higher IQ gains in comparison to the non-PLDK and one-year PLDK pupils. Furthermore, the one-year PLDK group made significantly higher gains in comparison to the non-PLDK group. Mean IQ differences for the PLDK treatments among pupils taught to read in TO were not significant. On the Peabody Picture Vocabulary Test, no significant differences were obtained among any of the various treatment groups.

2. In the ITA reading group, children receiving PLDK for two or three years made significantly higher language age gains on the ITPA, in comparison to those in the non-PLDK and one-year PLDK groups. In the TO reading group, children receiving three years of PLDK made significantly higher language age gains in comparison to all other PLDK groups.

3. On the Peabody Language Production Inventory, children who received two and three years of PLDK obtained higher scores than those in the one-year and non-PLDK groups. Moreover, children with one year of PLDK obtained significantly higher scores than those who did not receive the treatment.

4. On school achievement, reading instruction in ITA led to significantly higher scores on tests of word recognition and spelling, but not on a measure of reading comprehension.

5. The school achievement results with respect to the PLDK treatment displayed some inconsistencies. In the comparisons in which PLDK and ITA were combined, the three-year PLDK pupils were superior to the other groups on the word recognition subtests, as well as on total achievement. However, on the Spelling Subtest, both the non-PLDK and one-year PLDK pupils who received reading instruction in TO obtained significantly higher scores than the two-year and three-year PLDK pupils. Finally, the three-year PLDK pupils obtained the highest scores on the Reading Subtest, irrespective of the beginning reading method.

6. On measures of creative thinking, the three-year PLDK pupils generally obtained the highest scores, irrespective of reading treatment. Within the ITA group, however, an exception occurred in the analysis of the Verbal Subtest scores. In this analysis, performances of the three-year and one-year PLDK groups were found not to differ significantly. Furthermore, the one-year PLDK group taught to read in ITA, obtained higher scores than the two-year and non-PLDK pupils on the Verbal Subtests, as well as on the Figural Subtests across both reading groups. However, among children taught to read in TO, the two-year PLDK pupils obtained significantly higher scores in comparison to those in the non- and one-year PLDK groups on the Verbal and Total test score analyses.

In the secondary analyses comparing the regular teacher versus a team teaching approach to teaching the PLDK lessons, no significant differences in effectiveness were obtained between the regular teacher and the team teaching approaches, except in the case of the Peabody Picture Vocabulary Test. On the Peabody Picture Vocabulary Test, the team teaching approach resulted in significantly higher IQ gains; this was probably a spurious finding.

Conclusions

After three years of intervention, the ITA and PLDK approaches in combination appeared to be the most effective treatment for improving the intellectual and language development, as well as the school achievement and creative thinking of disadvantaged children. However, the use of ITA alone as an approach to teaching beginning reading also resulted in superior academic achievement, particularly on tests of word recognition and spelling. Furthermore, the duration of PLDK experience was related generally to superior performance on measures of creative thinking and on a test of oral language (i.e., W/0 < W/1 < W/2 < W/3).

It appears that exposure to the experimental reading and language development programs in this study had a number of beneficial effects upon the academic, linguistic, and cognitive development of disadvantaged children. The results of the Torrance Test were particularly encouraging since a major focus of the PLDK program is aimed toward the development of productive thinking. Wide generalization of these results, however, is limited by: 1) the possible influence of the Hawthorne Effect, 2) the teacher variable which was not controlled, and 3) the slight superiority on the indices of housing and education found within the three-year PLDK groups. However, within the context of these limitations, the statistical results suggest that the ITA and PLDK programs possess potential for improving the behavioral development of disadvantaged children. This generalization should be particularly applicable when applied to Negro disadvantaged children in the South who often bring to school: 1) lower verbal intelligence, 2) a restricted, non-standard form of English, and 3) an inability to articulate clearly many of the standard speech sounds.

Additional indications of the success of these educational interventions must await the results of a follow-up study which will be conducted on the subjects after they complete their fourth grade. Our plans include using most of the current assessment devices, as well as more sensitive measures of oral and written language. Too, the results of the CLDP need to be compared against those in our second study known as the Cooperative Reading Project where Hawthorne Effect was controlled. To date, the results for both the ITA and PLDK treatments have been less encouraging in this later study.

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APPENDIX A

PEABODY CULTURAL OPPORTUNITY SCALE GUIDELINES

65-66 Rev.

I. Housing Conditions: check the one item which best describes the dwelling unit in which the child resides.

II. Child Rearing

A. 1. Responsibility: check the one item which best describes the person who is in charge of raising the child. If this person holds some other relationship to the child than those offered (e.g. foster mother, father) specify that relationship.

2. Age: check the age range within which II.A.1. falls.

3. Education: circle the number indicating the highest grade completed by II.A.1. Numbers 1, 2, 3 and 4 following the (u) indicate the number of undergraduate years completed and 1, 2, and 3 after the (g) indicate the graduate years.

4. Employment: check both whether II.A.1. works outside the home and the item which best describes the number of days II.A.1. is engaged in such employment during the week.

B. 1. Father: check the one person who acts as the male surrogate to the child. If this person falls in some category not listed, specify their relationship to the child (e.g. friend, uncle).

III. General Family Information

A. 1. Number of persons: circle the total number of adults and children, including the pupil, who reside in the same dwelling unit as the child.

B. 1. Number of rooms: circle the number of rooms which make up the living quarters of the dwelling unit in which the child lives, remembering to exclude halls, closets, etc.

C. 1. Education: circle the number indicating the highest grade completed by III.A.1.

2. Relationship: check the item which gives the relationship of III.C.1. to the child. If this person holds some other relationship to the child than those offered (e.g. grandmother, friend) specify that relationship.

Peabody Cultural Opportunity Screening Scale (continued)

IV. Family Income

A. 1. Welfare: if the family has received any public assistance in the last year, check _________yes.

B. 1. Combined gross annual income: check the range within which the sum of all the money earned or received by all members of the family in the last year falls. Remember to include public assistance of any kind.

C. 1. Main wage earner: check the item which indicates which member of the family had the largest income last year.

OCCUPATION CLASSIFICATIONS

(primarily derived from the Dictionary of Occupational Titles and its companion book on occupational classifications)

Private household service workers

Private household service workers are involved primarily with the maintenance of homes, their grounds, etc. They are engaged in tasks associated with, for example, cooking meals, caring for children, or caring for the house or yard.

dayworker
houseman
maid
yardman
laundress
butler
cook
companion
housekeeper
nursemaid
babysitter
caretaker

Non-household personal service workers

Personal service workers are involved primarily with services which are given directly to people, hence a major defining characteristic of the work performed by them is that they are in direct contact with the persons to whom they render service and that this service is often designed to make them more comfortable.

barmaid
cook
bartender
waitress
bellhop
kitchen worker
hospital attendant
hotel or motel maid
counterman

Community service workers

Community service workers are involved primarily with services rendered to the community.

crossing guard
attendant
social worker
meter maid
night watchman
postman
policeman
fireman
probation officer

Peabody Cultural Opportunity Screening Scale (continued)

Non-household maintenance service workers

Non-household maintenance service workers are primarily involved in the upkeep of businesses and industrial property. This would include the grounds as well as the physical plant and the equipment of such organizations.

cleaning woman
porter
park keeper
janitor
busboy
road repairman
elevator operator
refuse collector
street cleaner

Day laborers

Day laborers perform simple duties which may be learned in a short time and which require the exercise of little or no independent judgment. Usually no previous experience is required for such employment. They are unskilled.

car washer
industrial worker
tobacco picker
food handler
truck loader
shop helpers
construction worker
parking lot attendant
stock boy (in a supermarket, etc.)

Semi-skilled laborers

Semi-skilled laborers perform manual tasks which are less dependent upon dexterity than on vigilance and alertness. They exercise independent judgment which is limited to their task and no broad knowledge of their field is required. Their tasks generally require a high order of manipulative ability and are limited to a well defined work routine.

laundry worker
chauffeur
route man
signalman
truck driver
delivery man
sewing machine operator
coin machine filler
service station attendant

Skilled workers

Skilled workers perform tasks which require a thorough and comprehensive knowledge of the field in which they work, a considerable judgment and a high degree of dexterity. Often they are responsible for the care of valuable equipment. Their jobs usually require extensive training; e.g. apprenticeships or schooling.

dressmaker
auto mechanic
plumber
butcher
seamstress
welder
sheet metal worker
chief baker
bricklayer
painter
photographer
bookbinder

Peabody Cultural Opportunity Screening Scale (continued)

Clerical and sales workers

Clerical and sales workers' duties involve the preparation, transcribing, transferring, systematizing, or preserving of written communications and records in offices, shops, etc.

saleswoman
bookkeeper
cashier
office clerk
timekeeper
telegraph messenger
office machine operator
telephone operator
shipping and receiving clerk

Professional, technical and managerial workers

Professional, technical and managerial workers' occupations require a high degree of mental activity and are concerned with the theoretical or practical aspects of complex fields of endeavor. They require extensive and comprehensive academic study and/or great experience.

nurse
doctor
lawyer
teacher
accountant
electrical engineer
musician
laboratory technician
office or business manager

APPENDIX B

GENERAL INSTRUCTIONS FOR THE TORRANCE TESTS OF CREATIVE THINKING, VERBAL TEST, FORM A

You are going to have some fun doing the things I have for you today. We are going to do 4 things that will give you a chance to think up new ideas. You will need all of your imagination and thinking ability for the things we will do. (Discuss IMAGINATION - ask if the child knows what that means: pretending, make believe, make up stories, etc.) There are no "wrong" answers, so be sure to tell me all you think of and try to make it something no one else has ever thought of.

Test 1: First, we are going to ask some questions about a picture I am going to show you. Can you tell me what a question is? (Concept of Question: What you want to find out; why, what, when, where, who sentence; etc. If the child still is uncertain, practice asking questions about some neutral topic.) (Present picture here.) Do not ask questions which you can answer just by looking at the picture. (Example: Does he have on a hat?)
Let's look at the picture. (Pause.) What would you like to know about it?

Test 2: Now, we are going to guess why he came here, or why he is doing this. Why do you think he is here?
(If needed: He is here because. . .; he is doing this because. . .; think of reasons why; etc.)

Test 3: Now we are going to guess what might happen to him or what he might do. What do you think might happen next?
(If needed: Remember, try to guess "What might happen next; what will happen because of this; maybe. . .;" etc. You may guess what might happen today or tomorrow or even next month (year).

Test 4: Here is a stuffed toy elephant of the kind you can buy in most dime stores for about $2 or $3. Tell me how you could make this elephant a toy that would be lots of fun to play with, especially for 3rd grade boys and girls. What would make him more fun?
(If needed:
1. If you had a magic wand and could make this toy be any way you wanted it to be, how would you make it different?
2. Use words "change" or "improve".
3. If you could tell Santa Claus just how to make this toy so that boys and girls would have the most fun with it, how would you tell him to change it?
4. Remember, let's keep him a toy.)

APPENDIX C

RAW DATA

Primary Analysis

Section I: Without PLDK

Group I: ITA

Subjects / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	79	90	72	108	94	-1.16	69	62	87	63	69	68
		86	104	90	102	87	-.43	78	71	105	82	78	72
		98	104	104			-.11	91	68	105	92	99	107
		109	107	120	96	93	-.63	94	85	105	108	90	83
2	1	71	121	84	125	98	2.31	93	106	105	82	56	107
		80	124	98	134	124	.70	84	57	105	99	94	93
		92	112	104			1.34	112	106	105	108	103	107
		103	120	126	129	153	1.30	112	106	105	108	107	107
3	1	72	100	72	91	64	-.64	67	85	70	70	56	76
		80	91	74	81	64	.14	79	85	80	82	90	93
		92	87	82			-.59	86	90	66	78	94	107
		104	102	96	81	82	-1.17	88	90	80	92	90	107
4	1	68	79	55	72	48	-1.18	58	85	75	44	73	53
		77	96	74	80	55	-1.73	56	77	80	66	86	57
		98	74	75			-.59	86	55	105	78	99	107
		100	84	86	83	73	-2.37	77	81	94	82	82	79
5	1	68	92	63	85	59	-1.81	53	46	40	44	56	76
		75	93	70	78	54	-2.97	58	55	70	53	73	49
		89	79	72			-1.51	77	77	53	78	78	107
		101	83	86	83	73	-2.19	79	111	70	70	90	107
6	1	77	84	66	78	54	-2.97	58	55	70	59	65	49
		86	87	76	75	59	.11	85	106	75	66	90	93
		98	86	86			-.43	88	85	75	82	107	107
		110	85	96	90	94	-.75	93	77	70	99	99	107
7	1	77	98	76	91	64	-.85	72	106	75	66	86	46
		86	104	90	97	80	-.20	81	77	75	78	73	68
		98	94	94			-.38	88	106	75	99	107	83
		110	90	102	101	110	-1.17	88	81	94	108	99	107
8	1	73	90	66	80	55	-1.61	60	51	57	53	73	57
		82	97	80	89	71	-1.10	71	65	87	70	65	93
		94	83	80			-1.71	93	81	75	87	99	107
		106	86	94	76	75	-3.00	83	53	105	92	94	93
9	1	81	72	60	40	38	-3.00	52	60	57	47	73	49
		92	68	64	67	57	-3.00	60	53	62	66	56	57
		102	82	84			-3.00	69	57	62	70	52	107
		113	69	80	70	73	-3.00	71	90	62	82	52	49
10	1	72	97	70	87	61	-1.33	62	65	57	66	52	57
		81	98	80	79	63	-.79	72	68	70	78	65	64
		92	116	108			-.11	91	62	94	87	78	107
		103	108	114	81	82	-.33	98	95	87	108	94	107
11	1	71	103	73	102	74	-1.16	63	57	57	70	44	79
		80	124	98	116	102	.58	84	90	80	78	61	88
		91	113	104			-.70	85	81	80	82	82	79
		104	98	104	126	149	-1.47	85	77	75	92	107	107
12	1	72	74	55	38	36	-3.00	49	53	44	47	69	53
		81	76	63	79	63	-1.29	69	49	57	66	65	61
		92	87	82			-3.00	64	90	70	63	48	57
		104	77	82	76	75	-2.19	79	57	94	73	90	107

13	14	15	16	17	18	19	20	21	22	23	24	25
95	60	75	68	70	2.2	2.8	1.7					
95	82	64	81	61	1.4	1.7	1.9					
104	100	71	64	71	2.3	2.4	2.0		2.3			
95	91	94	94	83	3.4	2.3	3.0	2.9	2.7	29.00	17.75	46.75
104	78	102	76	82	1.8	2.8	1.9					
104	73	88	68	59	1.7	2.0	1.9					
104	87	102	72	80	4.2	4.6	3.3		2.7			
104	109	102	88	84	5.7	5.3	5.1	4.6	4.6	27.00	22.75	49.75
70	78	52	52	63	1.9	2.2	1.5					
65	87	67	68	59	1.6	1.8	1.6					
88	91	79	88	68	2.9	2.4	2.1		2.2			
70	100	84	81	77	3.4	3.2	2.6	2.9	3.3	23.67	14.75	38.42
33	46	61	50	46	2.0	3.6	1.9					
30	60	71	68	69	1.8	1.8	1.2					
104	82	102	61	65	3.0	2.9	2.6		2.9			
50	87	88	61	70	2.7	2.7	3.2	2.4	4.0	22.00	20.50	42.50
55	46	55	58	39	1.7	1.8	1.6					
65	37	58	61	41	1.7	1.4	1.5					
82	87	71	76	55	2.4	2.0	1.8		2.0			
70	69	84	68	73	2.4	2.5	2.2	1.0	2.0	16.33	15.25	31.58
50	51	55	68	62	2.9	3.9	2.0					
70	46	102	108	63	2.1	2.4	1.7					
65	73	84	108	61	3.5	3.9	3.3		3.6			
60	91	88	108	70	4.1	4.0	3.7	2.9	5.7	14.67	19.75	34.42
88	69	67	64	71	2.9	3.1	2.1					
65	55	102	101	63	1.7	2.1	2.2					
55	100	71	108	62	3.0	3.2	2.7		3.0			
55	87	88	81	73	2.8	2.7	2.6	2.6	4.6	24.67	27.50	52.17
55	64	64	72	71	1.6	1.9	1.6					
82	73	61	64	62	1.4	1.9	1.6					
65	91	102	108	64	2.2	2.4	1.9		2.1			
82	91	75	88	68	3.1	2.9	2.5	1.4	2.7	23.33	16.25	39.58
38	28	52	50	59	1.7	2.1	1.7					
60	69	67	55	25	1.6	1.6	1.6					
70	73	79	64	61	2.5	2.5	2.2		2.7			
60	82	84	81	65	3.1	3.2	2.0	1.0	3.0			
50	55	84	64	37	2.2	3.1	2.5					
82	69	102	88	40	1.8	2.2	2.5					
105	60	102	108	56	2.8	3.6	3.0		2.6			
88	82	90	94	80	3.1	2.7	3.0	2.1	3.0	17.33	20.00	37.33
95	69	67	52	62	1.8	1.8	2.5					
88	82	102	81	63	1.5	1.8	1.6					
50	109	102	79	70	1.6	2.1	2.2		1.8			
76	105	79	61	81	1.7	1.9	2.8	2.1	2.0	31.00	14.00	45.00
42	37	61	31	34	1.9	2.1	1.9					
88	51	102	76	32	1.4	2.0	2.0					
55	33	79	72	66	1.9	2.4	2.0		2.0			
76	60	88	68	75	2.4	2.7	2.7	2.4	2.4	35.67	9.00	44.67

Group I: ITA

Subjects / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
13	1	79	71	58	52	44	-3.00	57	53	49	42	61	107
		87	78	70	77	61	-1.94	73	90	87	59	86	72
		99	89	90			-3.00	71	57	75	73	86	88
		112	82	94	83	85	-.39	87	106	105	82	86	107
14	1	78	72	58	69	54	-2.66	60	55	70	50	65	61
		86	73	65	71	55	-.65	76	71	70	63	86	79
		97	76	76			-1.24	79	74	105	73	94	61
		110	78	88	80	80	-.95	82	85	105	82	90	49
15	1	79	80	65	63	48	-3.00	53	60	57	63	56	42
		88	83	75	87	70	-1.69	79	106	57	82	90	76
		99	82	83			-2.91	73	33	87	92	90	79
		112	78	90	80	80	-1.47	85	74	105	108	78	76
16	1	78	80	64	71	55	-2.66	60	46	62	59	61	61
		87	78	70	95	78	-2.88	73	65	105	78	48	107
		99	76	78			-2.97	69	65	75	87	69	83
		110	70	80	78	78	-2.85	73	81	94	70	52	93
17	1	79	75	61	45	42	-2.60	61	42	66	56	61	46
		87	83	74	67	52	-.11	81	57	57	82	52	107
		99	99	100			-1.41	86	77	62	92	90	107
		112	85	98	116	130	-.99	90	85	75	92	94	107
18	1	74	75	57	47	38	-3.00	48	65	49	50	35	46
		83	88	74	79	63	-3.00	54	46	62	53	48	61
		94	75	73			-2.58	68	77	75	73	32	72
		106	68	74	80	80	-1.83	82	81	70	78	103	88
19	1	69	97	67	78	54	-.64	62	62	62	42	78	42
		78	100	78	78	54	-1.41	68	57	70	70	99	79
		90	89	82			-2.85	66	80	73	65	65	107
		101	91	94	88	92	-1.95	81	106	87	78	94	83
20	2	73	79	59	78	54	-.87	65	85	80	42	40	79
		80	87	71	71	55	-2.35	62	55	75	50	40	64
		85	82	80			-1.77	74	55	105	78	65	107
		107	76	84	76	75	-2.37	77	53	87	82	69	88
21	2	75	91	69	87	61	-1.10	64	62	87	56	69	64
		83	90	76	83	66	-1.73	66	60	94	63	73	72
		85	80	78			-.43	88	55	105	92	111	107
		107	87	96	90	94	-.33	98	106	80	99	82	84
22	2	79	109	86	97	80	-.60	73	65	94	78	78	76
		86	109	94	104	89	-.81	84	68	87	99	103	83
		99	107	108			-1.08	112	106	105	108	111	107
		111	103	118	106	120	-.02	103	95	105	108	111	107
23	2	72	110	78	100	71	-.87	65	68	66	66	69	61
		79	112	88	83	66	.02	78	106	87	70	107	31
		91	111	102			-.65	85	90	94	108	65	79
		103	114	120	93	99	.94	112	106	105	99	111	93
24	2	68	84	68	74	50	-1.08	59	62	62	63	65	61
		76	88	76	80	55	-1.29	69	68	70	59	73	88
		88	84	88			-1.56	76	106	53	82	86	83
		100	84	83	95	90	-1.53	85	57	70	82	94	107

13	14	15	16	17	18	19	20	21	22	23	24	25
50	46	61	52	37	1.9	1.4	1.8					
50	78	71	72	61	1.5	1.4	1.6					
42	73	79	76	55	1.6	1.9	1.9		1.1			
55	73	67	94	81	2.5	2.5	2.3	1.4	2.0	37.33	16.75	54.08
82	51	50	72	38	2.2	2.5	2.0					
88	91	67	81	38	1.7	2.0	2.1					
82	82	71	94	67	2.2	2.2	1.9		2.4			
104	91	67	94	71	3.0	2.1	2.4	1.5	2.2	16.33	18.50	34.83
42	28	52	61	21	1.8	2.4	2.0					
88	87	67	64	34	2.0	1.9	2.3					
50	82	61	88	68	2.8	4.3	2.3		3.2			
70	91	81	108	63	3.7	3.2	3.5	3.1	4.1	17.33	17.25	34.58
60	42	75	81	50	1.4	1.5	1.6					
60	60	61	88	58	1.4	1.3	1.7					
46	60	64	76	71	1.4	1.3	1.7					
76	69	61	72	68	2.1	2.5	1.8	1.9	1.8			
60	69	102	61	75	2.7	3.9	2.5					
88	87	102	94	69	2.5	3.1	1.9					
60	78	102	72	93	4.2	4.6	2.8		4.7			
55	100	103	68	93	3.6	4.0	3.0	3.4	6.5	33.67	15.25	48.92
46	28	58	31	52	3.2	3.1	3.0					
46	69	58	47	29	1.8	1.8	2.1					
65	87	61	47	62	2.7	3.2	2.0		2.9			
46	87	64	76	71	2.7	2.5	1.6	1.0	2.9	7.33	13.25	20.58
82	78	61	68	56	1.7	2.5	1.9					
55	55	64	68	66	1.8	1.7	1.5					
46	42	67	72	70	3.5	4.9	3.1		4.4			
65	73	75	76	70	4.5	4.3	3.2	2.9	5.1	30.67	18.25	48.92
65	55	75	68	87	1.6	1.4	1.3					
65	64	67	88	49	1.6	1.3	1.5					
55	69	75	76	63	1.9	2.7	1.7		1.9			
55	91	102	81	49	3.1	2.3	2.2	1.0	3.1	6.00	13.25	19.25
55	28	84	72	58	1.7	1.8	1.9					
60	33	79	64	55	1.7	1.4	1.9					
76	64	102	94	63	2.8	3.6	2.2		3.0			
65	96	102	93	72	2.9	4.1	2.8	3.1	4.4	31.33	15.50	46.83
55	64	75	94	64	2.9	3.9	3.2					
82	87	71	88	58	2.4	3.1	2.3					
95	100	79	108	62	4.2	4.9	3.7		4.7			
95	96	79	108	73	4.8	5.5	6.1	3.3	7.9			
55	46	75	76	35	2.9	3.9	3.9					
76	78	84	81	22	2.9	2.8	3.7					
82	91	102	72	69	3.9	4.3	4.2		4.9			
104	114	102	108	72	5.4	5.8	4.4	6.9	6.5	15.00	20.75	35.75
38	33	67	64	49	1.6	2.1	1.8					
60	60	64	81	59	1.5	1.3	1.5					
35	87	75	94	61	1.8	2.2	2.2		2.2			
60	100	102	88	57	2.5	2.9	2.6	2.8	3.1	40.33	13.50	53.83

Primary Analysis

Section I: Without PLDK cont.

Group I: ITA

Subjects / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
25	2	75	112	83	100	71	.60	73	71	53	82	90	68
		83	103	86	102	87	-1.28	69	71	66	78	99	46
		95	112	108			-.54	86	71	75	108	111	83
		107	111	122	95	101	-.51	96	106	105	92	99	93
26	2	78	89	70	40	38	-1.54	67	65	53	59	78	57
		85	100	86	93	76	-1.46	68	62	80	78	61	53
		97	82	82			-1.40	78	40	94	87	103	79
		111	89	102	70	67	-1.05	90	65	80	87	90	107
27	2	78	87	69	69	54	-2.85	59	65	57	59	82	49
		87	83	74	75	59	-1.82	65	57	80	70	48	72
		99	80	82			-1.08	81	55	80	87	94	107
		111	79	90	80	80	-1.71	83	57	75	87	107	72
28	2	77	96	74	93	66	-.79	72	73	75	87	52	79
		87	100	88	89	71	.34	88	106	87	82	90	79
		97	105	106			.16	95	55	62	92	90	107
		110	103	116	83	85	.58	112	106	105	92	99	93
29	2	71	70	52	80	55	-1.95	58	51	53	53	78	53
		78	77	62	65	50	-2.22	63	55	80	50	82	61
		91	81	76			-2.96	65	60	75	73	69	72
		103	75	80	73	71	-2.43	77	62	105	82	86	72
30	2	71	77	56	43	37	-1.44	62	51	75	53	94	68
		80	89	72	81	64	-1.85	65	55	70	53	69	53
		91	93	86			-.88	88	90	80	73	82	107
		103	87	92	83	85	-.83	82	74	80	78	99	107
31	2	79	98	78	69	54	-2.47	62	60	87	63	35	68
		88	77	70	93	76	-2.04	72	85	87	78	90	76
		100	80	82			-1.89	81	81	66	87	94	107
		112	80	92	76	75	-2.01	80	90	70	78	94	107
32	2	68	105	71	70	47	-1.32	57	49	62	53	61	42
		77	96	74	102	74	-1.23	69	60	75	78	90	76
		94	88	84			.11	94	95	105	82	107	83
		108	96	106	83	85	-.57	95	62	105	92	111	109
33	2	79	82	66	57	45	-3.00	55	38	57	73	44	68
		88	87	78	77	61	-2.42	69	71	70	82	48	64
		99	87	88			-2.25	78	74	62	87	61	88
		111	79	92	78	78	-1.29	87	77	87	87	82	79
34	2	73	82	61	63	44	-3.00	51	60	57	47	82	53
		82	82	69	83	66	-3.00	58	65	75	56	44	38
		93	77	74			-2.26	70	55	66	78	82	107
		104	71	76	78	78	-2.85	67	53	87	73	73	76
35	2	75	84	64	44	41	-2.85	59	53	75	42	73	79
		90	73	68	57	47	-3.00	63	62	75	56	56	61
		102	78	82			-3.00	64	65	87	63	78	76
		114	70	82	77	85	-2.85	73	103	70	66	73	89
36	2	72	65	49	26	30	-3.00	48	65	44	50	61	27
		81	82	68	59	46	-3.00	48	46	36	53	44	49
		92	94	88			-3.00	60	65	53	70	52	57
		103	75	80	85	87	-3.00	71	85	70	73	99	68

13	14	15	16	17	18	19	20	21	22	23	24	25
70	69	84	76	66	2.7	3.9	2.8					
50	87	71	64	68	2.9	2.8	2.1					
60	87	79	108	64	3.7	4.6	4.2		4.7			
88	109	75	76	72	5.0	4.6	4.4	4.8	6.8	33.33	17.00	50.33
50	82	94	72	35	1.9	2.8	2.0					
50	87	79	68	60	1.6	1.7	1.7					
65	96	94	81	55	2.7	3.9	2.3		2.2			
60	96	102	81	57	3.2	4.1	2.2	2.2	4.0	16.00	12.75	28.75
42	46	52	72	55	2.2	2.8	1.8					
55	60	64	81	57	1.8	2.3	1.8					
55	82	102	76	63	2.7	3.4	3.0		3.6			
65	114	84	101	69	3.1	3.5	3.3	2.8	4.8	11.00	21.50	32.50
88	69	102	76	72	2.9	3.6	2.2					
60	64	102	108	63	2.5	2.4	2.0					
104	105	102	108	71	3.5	3.4	3.3		4.2			
104	114	102	108	82	4.1	4.4	3.8	3.5	5.3	19.33	20.75	40.08
55	42	75	61	31	2.2	3.9	2.5					
50	42	79	72	65	1.7	1.8	1.7					
38	33	71	101	71	3.0	4.6	2.8		3.6			
55	69	84	108	72	3.4	3.5	3.6	2.0	4.2	23.00	22.50	45.50
46	42	64	64	58	2.2	3.1	2.3					
82	60	75	88	69	1.8	2.4	1.7					
70	87	84	68	71	2.9	4.6	3.0		4.2			
60	91	75	86	88	3.7	3.6	3.1	4.1	5.7	40.67	24.75	65.42
65	55	64	58	72	2.1	3.6	2.0					
60	60	58	64	66	2.1	1.9	1.8					
70	87	58	94	66	2.4	3.2	3.2		2.5			
70	69	64	88	71	3.0	3.5	2.2	1.1	3.5	18.00	12.50	30.50
50	60	71	61	93	2.9	3.6	2.3					
82	42	67	64	71	2.5	3.6	2.0					
108	87	102	72	59	3.9	4.6	3.3		4.4			
70	110	102	76	89	3.6	3.9	3.9	2.8	4.2			
46	37	84	52	42	2.1	2.5	2.0					
50	73	102	52	51	1.7	1.7	1.8					
50	96	102	58	75	2.3	2.9	1.9		2.9			
60	91	102	108	70	2.0	2.6	2.4	2.6	4.2	24.67	11.00	35.67
46	51	55	68	57	2.2	2.5	2.5					
55	55	64	61	44	1.8	2.1	1.6					
42	87	67	72	62	2.8	3.2	2.2		3.6			
42	69	61	88	67	2.8	3.2	2.4	1.2	4.4	12.67	9.00	21.67
55	42	55	64	92	2.0	3.1	2.9					
42	60	67	81	56	1.9	2.1	2.0					
30	28	88	68	70	2.1	2.3	1.7		2.6			
82	46	75	70	71	3.2	2.9	2.4	1.0	2.4	30.67	11.50	42.17
33	37	52	47	57	1.6	1.9	2.0					
38	37	61	52	24	1.6	1.3	1.7					
55	64	64	52	72	1.1	1.6	1.9		2.0			
42	78	58	68	70	1.0	2.2	2.3	1.0	2.4	25.33	13.25	38.58

Primary Analysis

Section I: (Without PLDK) cont.

Group I: ITA

Subjects / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
37	2	74	76	58	89	63	-1.44	62	74	57	50	94	49
		82	84	70	38	37	-3.00	49	35	53	50	61	46
		93	82	78			-3.00	61	57	70	63	69	57
		105	72	78	66	62	-3.00	60	60	80	66	52	57
38	2	80	75	62	75	57	-3.00	57	51	70	53	61	34
		87	82	72	95	78	-1.88	73	81	80	63	52	68
		101	83	86			-3.00	65	62	87	73	48	57
		113	74	86	85	87	-1.77	82	68	87	82	99	107
39	2	70	71	52	43	37	-3.00	48	47	40	37	48	42
		79	86	69	59	43	-.85	72	53	62	63	56	107
		90	78	72			-2.10	72	74	70	78	61	79
		101	75	78	68	65	-2.73	74	55	105	73	73	83
40	2	78	75	60	67	52	-2.85	59	55	75	47	52	57
		86	79	70	63	48	-.20	81	62	80	66	82	79
		98	76	77			-1.77	74	60	75	78	94	49
		110	78	88	90	94	-2.07	80	95	75	87	107	76
41	2	70	87	62	85	59	.59	63	57	80	50	78	46
		79	95	76	73	57	-1.23	69	55	75	70	90	64
		89	95	86									
		101	103	106	87	93	-1.41	86	106	94	78	90	39
42	2	73	111	80	97	70	.95	79	77	75	78	99	79
		82	102	84	93	76	-1.19	70	53	105	82	86	64
		94	100	96			-.75	84	73	87	99	90	107
		106	112	122	83	85	1.06	112	106	105	99	107	107
43*	2												

*Only included in Torrance Analysis

13	14	15	16	17	18	19	20	21	22	23	24	25
42	55	88	44	69	1.9	2.3	2.2					
38	51	102	81	38	1.7	1.9	1.6					
30	51	94	68	58	2.7	2.8	2.2		2.7			
38	37	88	58	66	3.0	3.5	2.5	1.4	3.3	18.00	12.50	30.50
60	60	67	61	68	2.2	3.1	2.2					
95	100	75	72	58	2.7	2.8	1.8					
42	69	71	81	82	2.7	3.0	2.3		3.8			
55	87	75	88	79	2.7	2.4	2.6	2.6	3.8			
35	37	102	40	24	1.7	1.7	1.9					
70	51	102	64	43	1.4	1.4	1.7					
42	46	102	64	61	1.4	2.1	1.8		1.1			
38	51	102	88	58	1.6	2.6	2.4	1.5	1.5	16.67	9.50	26.17
35	73	102	50	79	2.4	2.4	1.9					
60	78	102	108	63	1.8	2.0	1.9					
42	87	102	101	63	2.3	3.4	2.3		2.4			
50	73	67	94	69	2.6	3.2	2.5	1.0	3.1			
70	73	61	61	52	2.2	3.9	1.9					
55	78	75	72	48	1.8	1.9	1.9					
				54	3.0	3.6	3.4		3.8			
38	100	102	107	43	4.0	4.6	3.5	3.9	5.3	4.00	13.75	17.75
104	73	61	88	58	1.8	3.1	1.8					
70	60	75	68	62	1.6	1.8	1.5					
104	82	84	72	65	2.5	2.2	2.1		2.2			
104	96	88	101	77	2.3	3.0	3.1	2.6	3.8	26.67	32.00	58.67
										27.67	8.25	35.92

Primary Analysis

Section I: Without PLDK

Group II: Control

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	76	81	63	76	52	-2.60	61	85	75	63	65	53
		84	94	80	83	66	-1.37	69	57	105	82	78	76
		96	87	84			-1.77	74	71	105	92	86	61
		107	93	102	73	71	-1.41	86	85	105	87	94	107
2	1	73	83	62	34	34	-2.01	58	62	62	44	73	72
		81	81	67	63	48	-2.04	64	55	57	56	56	72
		92	76	72			-3.00	61	55	49	66	82	68
		104	69	74	70	67	-3.00	73	62	75	66	69	107
3	1	69	86	60	100	71	-1.55	61	57	62	63	40	72
		77	96	74	104	76	-2.47	69	62	87	70	69	53
		88	99	88			-1.18	80	62	80	73	86	107
		101	97	100	92	85	-2.01	80	81	105	82	69	86
4	1	78	61	50	38	36	-3.00	51	44	62	47	61	61
		86	76	87	77	61	-3.00	58	57	53	56	52	61
		97	86	86			-1.99	72	65	70	70	90	107
		110	78	88	76	75	-1.77	82	77	66	73	99	107
5	1	69	79	56	78	54	-2.19	50	55	57	44	31	49
		77	96	74	93	66	-3.00	53	53	49	53	40	38
		89	86	78			-3.00	62	55	57	82	48	72
		101	73	76	90	82	-1.89	81	71	70	82	69	107
6	1	75	61	46	40	36	3.00	56	53	57	53	56	64
		83	83	70	63	50	-2.05	63	51	80	47	61	64
		94	83	80			-1.83	74	90	94	70	86	57
		107	82	90	68	65	-.75	91	106	87	70	90	107
7	1	71	85	61	95	68	-1.84	59	62	87	53	99	49
		79	90	72	87	70	-1.91	65	46	87	63	103	68
		91	81	76			-2.15	71	62	80	99	86	83
		103	77	82	73	71	-2.61	75	55	94	78	94	107
8	1	74	90	67	90	55	-.81	66	42	80	59	78	64
		82	90	75	97	80	-.61	76	68	80	66	103	83
		94	98	94			-1.02	81	85	66	66	103	83
		106	86	94	80	80	-1.77	82	68	70	82	94	79
9	1	84	81	70	69	54	-.38	78	66	62	59	52	49
		92	80	76	74	64	-3.00	59	53	75	56	73	46
		104	88	94			-2.49	76	77	105	78	90	64
		116	76	90	81	90	-1.53	85	106	105	97	90	64
10	1	76	74	51	43	37	-3.00	58	81	70	39	52	64
		84	81	70	77	61	-2.41	60	77	66	56	65	46
		97	85	85			-1.56	76	65	70	70	90	107
		108	85	94	86	90	-.99	90	85	105	78	94	107
11	1	74	100	74	63	44	-1.21	63	62	66	70	61	46
		82	95	79	69	54	-1.48	67	65	75	70	73	46
		100	104	106			-.70	85	65	80	78	107	79
		111	107	122	86	90	-.69	93	104	80	99	94	107
12	1	76	91	70	100	71	-1.97	64	62	66	70	90	61
		82	89	74	97	80	-.65	76	95	75	66	82	57
		96	96	94			-.59	86	106	105	87	94	76
		108	81	90	98	105	-1.23	87	106	105	92	69	83

13	14	15	16	17	18	19	20	21	22	23	24	25
46	28	43	88	32								
60	33	75	72	48	1.5	1.8	1.6					
38	82	79	76	59	1.9	1.7	1.8		2.1			
55	64	71	108	53	2.7	2.7	2.8	1.9	1.8	38.00	30.75	68.75
46	33	71	50	68								
70	78	75	64	22	1.7	1.7	1.8					
30	55	84	61	55	2.2	2.8	1.9		2.5			
50	69	102	68	64	3.0	2.6	3.0	2.4	3.6	33.00	23.50	56.50
65	42	84	58	24								
65	33	102	101	63	1.3	1.7	1.6					
82	51	102	64	62	2.0	1.7	2.0		2.0			
65	60	102	88	69	2.9	2.7	2.5	1.7	2.3	33.67	19.25	52.92
35	37	58	52	80								
60	55	67	52	69	1.6	1.6	1.7					
55	55	79	76	77	2.4	2.8	2.3		4.4			
60	64	79	108	79	2.6	3.0	2.2	2.0	3.6			
38	37	61	61	68								
65	37	67	61	62	1.7	1.8	1.6					
42	46	84	68	60	2.1	2.6	2.2		2.9			
104	69	75	108	71	2.3	2.2	2.8	1.2	2.9	18.67	13.75	32.42
42	33	88	52	51								
88	64	94	58	71	1.5	1.5	1.7					
30	55	102	94	60	2.1	2.4	2.2		3.8			
76	64	102	76	64	2.5	2.3	2.8	2.0	2.7	31.67	14.50	46.17
65	33	43	52	40								
76	55	50	64	58	1.6	1.5	1.7					
33	73	71	68	61	1.9	1.8	1.9		2.1			
76	42	67	108	72	2.3	2.5	1.9	1.2	2.5	24.67	12.25	36.92
46	55	102	81	40								
82	55	84	76	58	1.8	1.8	1.7					
42	78	102	81	68	2.9	4.4	2.3		4.4			
70	73	102	108	63	3.5	3.3	2.7	1.7	4.2			
65	64	55	44	55								
76	60	43	64	59	1.5	1.4	1.6					
70	73	84	55	56	2.3	2.7	2.4		2.5			
82	96	84	61	60	3.2	3.6	2.6	2.4	4.0	15.67	7.75	23.42
70	37	67	40	64								
70	51	61	50	57	1.7	1.9	1.9					
88	42	102	76	54	2.2	4.3	1.9		4.0			
88	78	102	101	76	2.7	3.5	2.0	2.4	4.6			
38	55	88	76	55								
42	69	84	94	53	2.5	2.3	2.5					
35	109	102	76	69	3.3	4.6	3.8		4.7			
60	114	94	81	62	4.5	5.5	3.9	4.2	6.5	12.33	11.25	23.58
46	33	102	52	57								
82	64	102	58	55	1.9	2.2	1.7					
35	87	102	76	63	2.8	2.7	2.4		3.4			
70	100	102	68	67	2.8	3.1	2.8	2.8	3.1	19.33	11.75	31.08

Primary Analysis

Section I: Without PLDK

Group II: Control (cont.)

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
13	1	75	82	63	83	66	-3.00	55	51	87	63	56	57
		83	98	82	91	74	-1.37	69	77	94	87	61	49
		95	97	94			-1.13	80	106	75	108	90	107
		107	74	82	96	103	-.99	90	106	105	108	94	107
14	1	72	74	55	80	55	-3.00	51	51	66	50	56	46
		79	84	68	83	66	-2.47	62	81	66	56	69	38
		92	85	80			-2.58	68	71	70	53	90	68
		103	79	84	78	78	-3.00	69	67	105	73	86	68
15	1	71	72	53	80	55	-1.33	62	106	53	56	48	83
		79	83	67	85	68	-1.79	66	57	94	70	61	64
		92	85	80			-1.88	73	71	80	78	61	79
		103	81	86	85	87	-1.35	86	106	75	73	73	107
16	1	72	79	58	85	59	-1.44	62	51	66	66	82	64
		79	91	73	85	68	-.98	70	62	70	73	78	72
		91	102	94			-1.51	77	85	70	87	52	93
		104	92	98	91	97	-.93	91	77	87	92	61	107
17	1	68	85	59	63	44	-2.34	49	44	57	47	40	46
		76	109	82	59	71	-2.60	61	57	80	78	48	49
		90	85	78			-2.53	68	77	75	82	61	58
		101	77	80	81	82	-2.55	76	106	53	78	65	79
18	1	79	87	70	75	59	-1.91	65	55	70	73	40	57
		86	101	88	102	87	-.06	85	106	94	82	61	93
							-.57						
		110	97	110	93	99	-.42	95	90	105	108	86	88
19	1	72	116	82	102	74	-.42	68	74	94	63	82	68
		81	101	82	106	91	-.79	74	77	87	87	69	64
		115	90	106	98	116	-1.23	112	90	105	99	82	79
20	1	74	73	55	34	34	-2.92	52	51	62	37	52	57
		82	84	70	65	50	-3.00	52	51	75	59	35	61
		106	77	84	78	78	-1.67	75	51	80	70	82	107
21	1	80	68	57	69	54	-2.16	63	62	49	70	48	72
		88	82	74	83	66	-1.19	70	71	75	87	65	57
		112	71	82	75	73	-1.59	84	85	105	92	94	107
22	1	78	97	76	87	70	-1.04	70	49	105	70	69	57
		86	101	88	97	80	-1.06	72	95	87	70	69	72
		110	80	90	96	103	-.69	93	106	70	82	94	79
23	1	76	100	76	110	82	-.85	72	77	94	82	69	46
		84	112	94	104	89	-.43	78	68	105	82	56	83
		96	113	110			0	93	95	105	92	99	107
		107	104	114	90	94	.46	112	90	105	87	107	107
24	2	72	89	65	95	68	-1.50	61	53	75	56	86	49
		78	83	66	93	76	-1.46	68	57	75	70	103	42
		92	85	80			-2.10	72	55	57	78	103	72
		103	79	84	78	78	-2.01	80	70	62	78	94	72

13	14	15	16	17	18	19	20	21	22	23	24	25
46	55	39	55	79								
70	60	67	64	52	1.7	2.4	2.1					
55	73	55	61	62	2.5	4.3	3.2		4.0			
55	87	58	101	45	2.9	3.5	2.4	2.6	4.0	23.33	9.00	32.00
35	42	61	47	72								
82	46	61	55	57	1.5	1.5	1.7					
76	73	67	55	62	2.0	1.9	1.9		3.2			
70	64	55	68	66	2.8	2.7	2.3	1.0	2.3	32.67	8.00	40.67
46	46	61	58	59								
104	73	71	31	60	1.9	2.2	1.9					
55	96	94	58	58	2.8	2.4	2.2		2.3			
95	96	67	64	64	2.5	3.1	2.3	1.0	2.3	25.67	10.25	35.92
55	55	61	58	55								
82	60	71	76	28	1.6	1.6	1.8					
38	87	102	76	67								
104	96	102	76	69	2.7	2.6	2.4	1.4	3.0			
33	51	64	55	60								
42	46	61	81	50	1.6	1.2	1.3					
55	37	84	88	54								
76	51	79	94	56	3.1	2.1	2.7	1.1	1.5	24.00	8.50	32.50
82	73	75	68	64								
88	87	79	81	62								
104	82	102	101	75	4.1	4.6	3.2	4.7	3.9	43.67	17.75	61.42
55	69	64	58									
88	60	79	72		1.8	1.7	1.5					
82	87	102	72	70	2.8	2.1	1.9	1.4	1.8	16.00	12.25	28.25
60	28	64	52	63								
65	28	61	31	58	1.4	1.4	1.6					
76	64	67	72	76	2.3	2.3	2.3	1.0	2.4			
70	42	102	47	32								
46	42	94	108	48	1.7	1.9	1.7					
82	51	67	81	65	1.9	2.2	2.5	2.6	2.3	14.33	17.00	31.33
70	51	102	72	38								
76	55	94	40	58	1.7	1.5	1.7					
70	82	102	108	67	2.3	3.7	3.0	2.6	4.0	38.33	12.75	51.08
55	64	102	64	63								
70	96	84	76	60	2.9	2.4	2.5					
46	100	102	72	61	4.2	3.9	4.0		4.7			
88	114	102	108	73	3.7	4.3	3.4	3.2	6.5	27.67	23.25	50.92
50	55	67	61	52								
50	64	84	81	70	1.8	1.6	1.5					
55	87	75	76	71	2.6	3.0	2.6		4.2			
70	91	102	108	74	3.4	2.7	2.3	2.6	2.9	22.67	11.50	34.17

Primary Analysis

Section I: Without PLDK

Group II: Control (cont.)

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
25	2	77	84	66	91	64	-1.23	69	71	94	66	65	88
		85	90	78	77	61	-1.10	71	77	62	82	90	79
		97	78	78			-2.15	71	68	70	66	90	83
		110	76	86	85	87	-2.25	70	77	87	92	111	93
26	2	79	73	60	79	63	-3.00	52	46	66	59	82	27
		87	82	73	110	82	-1.64	66	62	49	70	90	42
		98	83	84			-1.13	80	65	94	87	94	72
		110	88	100	85	87	-.87	91	71	105	87	94	93
27	2	74	82	62	67	46	-1.61	60	51	75	47	78	57
		81	84	69	71	55	-1.37	68	64	80	66	73	46
		93	78	75			-2.15	71	106	57	70	65	57
		105	85	92	71	69	-1.41	85	57	87	73	90	107
28	2	75	90	68	82	57	-1.55	61	57	87	59	69	27
		83	97	81	102	87	.56	91	106	80	82	61	79
		95	108	104			-.59	86	68	53	82	99	107
		107	104	114	78	78	.16	106	106	70	92	103	107
29	2	75	78	60	57	42	-2.01	58	65	44	63	52	61
		82	94	78	75	59	-.47	78	55	105	63	65	107
		94	84	81			-1.61	73	55	70	82	86	68
		106	86	94	81	82	-.93	91	90	94	70	99	107
30	2	69	82	58	63	44	-.79	61	62	62	63	44	93
		77	87	68	67	46	-2.41	62	65	75	70	86	38
		88	88	79			.97	82	106	75	78	99	93
		100	90	92	90	82	-1.17	88	95	80	87	99	107
31	2	69	87	61	82	57	-.64	62	60	57	63	65	42
		77	86	67	87	61	-1.73	65	65	66	66	94	46
		88	106	94			-1.56	76	60	53	78	86	88
		100	90	92	92	85	-1.65	84	74	87	82	103	76
32	2	69	95	66	87	61	-1.55	61	51	53	70	56	79
		77	88	69	85	59	.08	79	65	94	82	61	93
		89	100	90			-.75	84	95	87	78	99	72
		101	97	100	88	80	-.69	93	106	80	78	86	107
33	2	70	83	59	70	47	-.70	66	51	53	63	73	76
		89	83	76	82	57	-.48	74	55	75	73	94	64
		89	100	90			-2.20	71	57	66	78	78	57
		104	94	97	78	78	-.81	92	106	66	87	86	107
34	2	71	89	64	82	57	-.25	69	77	62	73	56	83
		79	101	80	73	57	.08	79	57	75	87	61	76
		90	101	92			-.48	87	90	70	99	86	93
		103	97	102	78	78	-1.41	86	106	87	73	82	107
35	2	90	95	77	89	71	-.36	75	71	80	82	78	93
		88	108	96	100	84	-1.34	78	65	87	92	90	83
		101	107	110			-1.05	90	77	80	87	87	88
		112	103	118	96	103	.70	112	106	105	92	111	107
36	2	77	76	60	68	54	-3.00	55	51	87	44	61	61
		84	80	69	67	52	-2.18	62	53	75	63	52	49
		97	89	88			-2.42	69	60	62	78	94	61
		109	71	80	76	75	-1.83	82	62	105	78	90	107

13	14	15	16	17	18	19	20	21	22	23	24	25
76	37	75	61	70								
50	51	71	72	61	1.6	1.6	2.6					
70	69	64	68	68	2.5	3.0	2.7		2.6			
60	55	67	68	69	2.9	3.2	2.5	2.2	3.1	24.67	8.75	33.42
30	42	55	72	13								
50	37	102	88	20	2.1	2.8	2.0					
33	73	102	81	62	3.2	4.6	3.4		4.9			
70	73	102	94	48	4.1	4.0	3.8	4.2	6.0	16.67	15.00	31.67
33	64	84	64	27								
46	64	102	76	34	1.6	1.6	1.5					
42	60	102	61	70	2.2	4.3	2.4		4.7			
82	64	102	88	76	3.0	2.5	3.0	2.0	5.1	20.67	18.75	39.42
46	55	102	52	33								
55	96	102	108	36	1.8	1.8	1.9					
38	96	102	94	74	2.6	3.6	3.4		3.6			
70	96	102	108	72	3.8	3.6	3.4	4.1	3.8	21.00	10.25	31.25
42	51	55	72	59								
76	87	102	68	68	1.7	1.6	1.9					
46	82	102	76	67	2.1	3.6	2.1		4.2			
55	87	102	94	68	3.0	3.5	3.0	2.6	4.2	38.33	7.75	46.08
38	46	67	64	60								
50	42	94	40	61	2.2	2.6	2.2					
50	87	84	72	65	2.9	4.6	3.7		4.9			
82	78	102	72	74	3.4	4.3	4.0	4.7	6.8	21.67	15.75	37.42
42	55	102	64	53								
42	46	94	68	59	1.9	2.6	1.7					
38	78	102	72	68	3.0	4.6	3.3		4.9			
55	73	102	94	72	3.8	3.9	3.1	3.8	6.5	24.00	5.75	29.75
46	37	67	81	72								
88	78	88	81	52	1.9	2.2	1.6					
38	82	102	101	71	2.7	3.6	3.0		4.4			
65	90	88	108	75	2.9	4.1	2.7	2.8	5.0	26.33	11.00	37.33
35	55	102	64	61								
65	60	102	108	67	1.7	1.6	1.8					
30	87	102	55	71	2.3	3.6	2.4		3.0			
55	78	102	68	49	3.2	3.1	3.0	1.9	3.6	32.33	16.00	48.33
46	64	102	55	43								
82	60	102	108	64	1.7	1.8	1.7					
70	78	102	88	65	3.0	3.2	2.5		4.0			
76	96	84	68	75	3.5	3.3	2.7	2.9	5.0	32.67	13.00	45.67
70	78	75	61	65								
70	91	71	68	58	1.7	1.7	1.6					
104	109	88	88	53	2.9	3.2	3.5		3.6			
95	109	88	81	73	3.1	3.2	4.3	3.2	4.4	50.67	19.00	69.67
38	37	71	47	42								
88	46	61	81	62	1.7	1.7	1.8					
70	78	71	61	70	2.8	3.2	3.2		3.6			
82	82	71	68	47	2.3	3.5	3.2	2.1	3.9	29.00	13.25	42.25

Primary Analysis

Section I: Without PLDK

Group II: Control (cont.)

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
37	2	80	74	61	73	57	-2.22	63	60	75	47	82	76
		84	84	75	77	61	-.74	75	77	80	73	94	72
		100	90	92			-2.01	80	106	66	82	65	107
		111	89	102	85	87	-.93	91	106	87	82	94	107
38	2	77	86	67	82	57	-2.04	64	65	66	70	65	57
		84	86	74	91	74	-.98	71	77	62	66	78	53
		97	93	92			-1.88	73	53	70	82	94	61
		108	88	98	90	94	-1.53	85	57	75	99	103	83
39	2	71	80	58	80	55	-2.12	57	74	66	53	61	31
		78	94	74	59	71	-2.91	59	57	62	59	61	49
		90	103	94			-1.88	73	55	57	73	94	72
		102	96	100	78	78	-1.53	85	65	80	73	103	88
40	2	81	80	66	36	36	-3.00	58	51	49	53	69	76
		89	88	80	79	63	-2.85	66	53	87	70	69	72
		87	75	86	93	75	-1.89	81	90	87	78	82	93
41	2	72	100	72	91	64	-1.04	64	57	57	59	78	61
		80	97	78	87	61	-.04	78	53	94	82	86	88
		96	115	102			-1.24	112	106	105	92	111	107
		104	109	116	100	107	.82	112	95	105	82	111	107
42	2	76	98	75	78	54	-.67	73	85	75	73	82	57
		84	122	102	99	82	-.25	80	62	62	87	78	88
		95	110	106			-.59	86	57	70	99	99	88
		117	115	126	90	94	1.24	112	106	105	87	103	107

13	14	15	16	17	18	19	20	21	22	23	24	25
42	46	64	76	64								
76	69	71	68	64	1.9	2.3	2.0					
88	73	79	68	71	2.9	4.3	3.4		4.7			
70	82	84	68	68	3.5	3.6	3.5	2.8	4.2	43.33	18.75	62.08
42	60	79	68	74								
70	78	94	68	65	1.9	2.2	1.9					
60	96	102	64	60	2.9	4.3	3.3		4.2			
70	100	94	101	65	3.1	3.9	2.6	3.1	5.3	18.00	12.00	30.00
55	46	64	52	40								
60	51	71	55	56	1.7	2.4	1.6					
42	73	102	68		3.1	4.3	3.0		4.4			
70	69	102	108	68	3.4	3.2	3.5	3.2	5.5	30.67	15.50	46.17
55	60	55	55									
88	69	52	61		1.4	1.3	1.4					
76	87	71	72	82	2.6	1.9	2.2	2.8	2.3	54.67	12.50	67.17
42	60	102	68	64								
65	87	102	64	55	2.4	2.4	2.0					
95	96	102	72	72								
95	109	102	101	72	4.1	4.0	3.4	4.5	4.9	33.67	26.75	60.42
76	73	64	81	68								
95	96	84	94	72	2.7	2.6	2.6					
76	100	99	108	72	3.7	4.6	4.0					
95	114	79	108	84	4.7	4.6	4.5	5.3	5.7	47.00	35.75	82.75

Primary Analysis

Section II: One Year PLDK

Group I: ITA

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	81	72	60	67	52	-.98	71	106	75	66	78	76
		89	88	80	92	84	-1.34	78	68	105	78	82	107
		102	90	94			-1.59	84	90	105	87	65	83
		113	79	92	81	82	-1.05	90	106	94	82	86	72
2	1	86	73	65	48	43	-2.32	61	46	105	53	56	79
		94	77	75	85	76	-3.00	62	55	53	59	69	64
		106	88	94			-1.95	81	77	75	70	103	107
		106	79	96	74	80	-2.91	73	57	66	73	90	93
3	1	95	72	71	88	80	-3.00	62	53	53	63	52	46
		103	83	88	75	74	-2.01	80	85	94	73	73	93
		115	85	100			-1.59	84	106	66	78	86	107
		126	76	96	69	87	-1.83	82	71	66	92	90	107
4	1	81	77	64	57	45	-1.55	67	68	62	59	78	61
		90	97	89	92	84	-.75	94	65	105	108	69	107
		102	106	110			-.33	88	85	87	92	94	107
		113	96	112	95	110	.16	106	106	75	99	82	107
5	1	74	55	44	38	36	-3.00	50	55	62	44	40	46
		82	77	65	81	64	-2.68	58	68	70	42	56	64
		95	67	66			-3.00	62	51	94	53	65	79
		106	62	68	65	61	-3.00	71	60	75	59	82	107
6	1	77	88	69	70	47	-1.73	66	90	57	73	78	53
		84	99	84	95	78	-1.46	68	57	73	87	61	93
		96	104	102			-.32	89	95	105	82	94	107
		108	103	114	83	85	-.08	102	106	105	99	107	107
7	1	77	77	61	82	57	-3.00	58	53	66	50	61	49
		86	82	72	99	82	-.97	72	95	62	78	78	42
		98	81	82			-1.61	76	74	62	87	73	93
		110	81	92	80	80	-1.71	83	85	80	82	86	107
8	1	73	90	66	85	59	-1.33	62	55	75	59	56	79
		82	97	80	100	84	-1.01	72	57	80	92	69	72
		94	94	90			-.11	91	95	80	92	94	107
		106	94	102	107	122	-.08	102	106	94	87	103	107
9	1	70	65	48	32	34	-2.68	46	65	57	47	44	34
		78	91	72	67	52	-1.79	66	55	70	63	90	64
		90	87	80			-2.20	71	95	62	82	65	68
		103	76	81	63	59	-3.00	72	68	87	87	99	53
10	1	72	79	58	47	38	-1.67	60	51	70	50	52	61
		80	82	67	55	44	-2.16	63	57	66	56	44	83
		92	75	71			-1.72	75	85	80	63	78	83
		104	88	94	76	75	-2.73	74	74	105	78	78	76
11	1	70	89	63	85	58	-1.72	60	65	62	53	65	49
		78	105	82	77	61	-1.16	69	62	87	70	82	79
		90	101	92			-1.51	77	81	87	78	78	93
		102	88	92	81	82	-1.77	82	60	75	99	107	88
12	1	77	101	78	82	57	-1.79	66	53	62	63	52	79
		85	98	84	91	74	-.11	81	90	80	99	65	72
		103	118	124	111	125	-.20	100	77	80	108	99	107

13	14	15	16	17	18	19	20	21	22	23	24	25
55	46	88	50	67	2.2	3.6	1.8					
55	82	79	58	62	1.6	2.1	1.5					
76	87	102	68	73	1.4	2.2	1.8		1.8			
70	109	102	76	73	3.2	2.5	2.7	1.4	2.6	18.67	13.50	32.17
65	46	55	61	47	1.8	1.9	1.5					
104	51	58	64	63	1.7	1.5	1.5					
104	64	58	68	61	2.3	2.1	1.9		1.8			
95	73	61	72	78	3.4	4.1	3.0	1.1	2.3	32.00	11.25	43.25
70	64	84	72	55	1.9	3.1	1.6					
65	60	102	81	67	1.8	2.1	1.7					
42	73	102	94	46	2.2	2.2	2.0		2.2			
55	78	102	94	58	2.7	2.6	2.3	2.0	2.2	17.00	11.50	28.50
88	55	88	58	38	2.0	2.6	1.8					
82	87	88	64	70	1.8	1.9	1.7					
65	73	102	81	60	1.9	2.4	1.9		2.1			
95	82	84	101	67	2.7	2.1	3.0	2.0	2.5	23.67	23.25	46.92
50	46	75	31	33	1.6	1.7	1.2					
35	55	61	61	9	1.6	1.7	1.2					
55	37	67	68	60	2.7	2.6	2.2		2.5			
38	46	94	94	73	3.0	2.7	3.1	1.5	2.3	26.00	19.25	45.25
65	60	61	58	69	2.7	3.1	3.4					
65	82	67	58	69	2.0	2.1	2.3					
65	87	71	64	82	3.7	4.9	3.5		4.6			
82	91	79	88	90	4.7	4.6	4.3	2.9	5.0	33.67	20.75	54.42
60	60	71	55	66	2.7	3.6	2.5					
104	64	102	108	63	1.9	1.8	1.3					
70	69	94	68	73	2.5	3.0	2.7		2.7			
82	78	79	72	88	2.6	2.8	2.3	2.4	3.1	26.67	27.75	54.42
60	51	67	58	91	2.9	3.6	3.7					
95	69	79	68	66	1.9	2.6	1.7					
88	87	88	94	67	3.3	3.2	3.3		3.2			
60	100	102	81	92	4.7	4.6	4.3	2.9	5.0	41.67	33.25	74.92
50	28	55	31	54	1.6	1.7	1.8					
60	42	84	68	45	1.5	1.6	1.6					
65	28	102	76	52	1.9	1.9	1.7		2.3			
55	69	61	88	53	3.1	2.5	2.0	2.6	3.0			
42	60	94	64	64	1.5	1.5	1.8					
55	51	94	64	34	1.5	1.5	1.9					
42	55	102	88	59	1.6	1.7	1.6		1.3			
65	64	61	88	68	2.9	2.6	2.7	1.5	2.3	16.33	20.75	37.08
65	33	84	55	50	1.6	1.7	1.7					
70	51	71	64	52	1.4	1.7	1.6					
76	69	71	68	49	2.0	2.1	1.9		1.6			
70	87	71	108	67	2.7	2.6	1.9	1.7	2.4			
76	73	79	64	55	2.9	3.6	3.2					
95	82	102	68	71								
104	100	102	76	73	5.0	4.6	4.0	5.0	5.7	34.33	12.50	46.83

Primary Analysis

Section II: One Year PLDK

Group I: ITA (cont.)

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
13	1	77	67	54	67	46	-2.53	61	46	62	50	65	57
		86	73	65	75	59	-1.33	69	68	70	63	94	83
		86	104	90			-.11	82	57	80	70	90	76
		109	65	73	71	69	-1.53	85	85	70	82	94	107
14	2	78	91	72	69	54	-1.97	64	51	57	66	52	49
		86	97	84	93	76	-.79	74	62	94	87	52	79
		98	81	82			-.86	83	90	75	87	78	83
		110	96	108	102	90	-3.00	86	68	75	92	86	107
15	2	90	65	61	71	61	-2.69	67	55	70	66	65	49
		99	64	66	81	71	-1.51	77	60	75	78	69	72
		98	79	80			-.32	89	106	75	73	78	107
		111	96	84	78	78	-1.29	87	85	66	78	82	107
16	2	78	96	75	89	71	-.85	72	65	80	73	90	49
		86	84	74	99	82	-.79	74	42	87	87	94	57
		98	90	90			-.86	83	90	66	82	99	76
		110	96	108	83	85	-.99	90	95	87	92	111	61
17	2	75	74	59	43	37	-3.00	57	53	49	50	90	53
		84	86	74	83	66	-1.15	71	55	87	73	56	57
		96	86	85			-.81	84	74	80	92	82	93
		108	77	86	85	87	-1.71	83	106	44	92	78	72
18	2	79	64	53	61	47	-3.00	52	49	62	47	56	68
		87	76	68	69	54	-2.74	67	57	75	59	78	76
		100	68	70			-2.49	76	57	87	78	78	107
		111	63	72	66	62	-2.97	72	60	70	66	103	88
19	2	69	81	57	74	49	-.64	62	68	57	53	56	76
		77	98	76	87	61	-1.41	68	55	66	44	82	88
		89	90	82			-.86	83	53	62	87	82	107
		101	89	92	95	101	-1.05	90	106	80	99	69	107
20	2	72	85	62	74	50	-2.18	57	60	66	47	65	53
		80	94	76	81	63	-.29	73	71	80	66	86	64
		92	96	90			.54	86	90	66	78	107	79
		104	88	94	83	85	-.14	101	106	75	87	107	107
21	2	72	77	57	70	47	-2.18	57	46	44	53	73	46
		79	84	68	69	54	.79	72	81	80	66	69	79
		92	85	80			-1.13	80	65	53	92	111	72
		103	87	92	80	80	-.63	94	106	75	87	99	107
22	2	80	79	64	73	57	-2.35	62	60	57	53	86	46
		87	81	92	91	74	-2.96	65	62	80	59	61	72
		99	76	78			-1.53	85	68	87	73	78	107
		111	68	78	80	80	-2.31	78	60	87	82	94	107
23	2	72	82	60	38	35	-2.63	54	49	80	53	65	49
		80	89	72	63	48	-1.29	69	57	53	66	69	72
		92	83	78			-.86	83	68	70	82	90	107
		104	77	82	76	75	-2.79	74	51	105	92	78	57
24	2	72	80	59	78	54	-3.00	51	49	57	44	52	42
		80	97	78	102	87	-.54	74	106	57	70	61	88
		91	86	80			-2.04	72	106	75	70	44	64
		103	87	92	80	80	-2.19	79	106	87	92	61	93

13	14	15	16	17	18	19	20	21	22	23	24	25
60	55	102	61	74	1.7	1.7	2.1					
60	55	102	64	70	1.7	1.7	2.1					
88	73	102	68	72	1.6	1.7	1.7		1.9			
70	69	102	72	69	2.0	2.4	2.5	1.1	2.0	18.67	13.50	32.17
70	82	94	72	75	3.2	2.8	3.4					
76	73	102	64	80	2.4	2.5	2.9					
70	73	88	108	81	3.5	3.4	3.3		4.2			
76	114	84	88	90	3.5	3.9	3.5	4.1	5.7	34.00	20.75	54.75
82	60	94	81	80	2.4	2.8	2.5					
104	69	84	108	87	1.9	2.2	1.7					
88	100	88	73	81	2.8	2.8	3.2		3.2			
104	91	75	88	89	3.6	3.5	2.4	2.8	4.1	38.33	29.75	68.08
65	82	84	68	35	2.9	3.6	3.7					
76	105	102	52	59	2.7	2.8	2.2					
60	87	84	108	54	3.3	3.9	3.4		3.6			
95	105	84	88	62	4.0	4.3	3.9	4.0	4.7	10.67	16.50	27.17
46	37	75	58	35	2.2	3.6	2.5					
50	64	102	108	73	2.7	2.5	2.0					
55	91	88	108	61	3.0	4.9	3.8		3.6			
65	100	94	108	90	4.5	4.0	3.6	4.7	5.5	34.33	21.00	55.33
55	60	55	31	81	2.2	2.4	2.2					
50	55	84	72	68	1.7	1.5	1.6					
46	78	102	68	72	2.9	3.2	2.6		2.5			
55	69	75	76	87	2.7	2.8	3.1	1.7	4.1	31.33	17.00	48.33
70	42	61	72	83	2.7	3.9	2.6					
88	69	75	64	79	2.0	2.6	1.6					
104	91	88	81	73	3.0	4.6	2.8		4.2			
104	96	67	72	64	3.8	3.9	3.6	3.8	5.3	29.33	20.75	50.08
42	55	58	58	55	2.7	3.1	3.2					
55	60	102	81	76	2.0	2.1	2.0					
65	100	102	88	81	3.9	4.4	4.4		4.7			
65	96	102	94	63	4.8	4.9	4.5	3.7	6.8	24.00	28.50	52.50
50	82	64	55	76	2.5	1.4	2.2					
38	55	102	76	83	1.7	1.9	1.5					
70	82	102	81	79	2.9	3.4	3.8		3.8			
70	73	102	101	75	3.0	3.7	3.0	3.1	4.4	28.67	18.00	46.67
55	64	75	64	64	1.7	1.9	1.7					
65	60	67	64	62	1.2	1.4	1.5					
76	73	94	81	79	1.9	1.6	2.2		1.0			
55	82	75	81	78	2.5	2.5	2.5	1.4	2.0	33.67	17.50	51.17
55	37	64	31	71	1.6	2.0	2.2					
95	60	75	81	63	1.6	2.0	2.2					
70	73	102	76	81	2.4	3.0	2.2		2.5			
104	91	61	81	82	2.5	3.5	2.6	1.9	3.5	22.00	17.75	39.75
65	55	50	50	64	1.6	2.0	1.6					
104	55	71	68	59	1.7	1.7	1.5					
104	55	67	81	68	2.2	2.2	1.8		1.9			
82	55	64	81	69	3.1	2.6	2.3	1.2	2.2	37.67	18.00	55.67

Section II: One Year PLDK

Group I: ITA (cont.)

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
25	2	78	89	70	97	80	-2.35	62	55	53	56	82	42
		86	101	88	99	82	-1.15	71	60	75	78	82	88
		86	94	82			-.81	84	81	75	78	99	107
		110	85	96	75	73	-.99	90	85	87	87	107	91
26	2	75	99	74	85	59	-1.41	68	62	87	78	78	53
		83	111	92	100	84	-1.28	69	55	57	78	52	107
		96	96	94			.05	93	74	87	92	99	107
		107	95	104	80	80	.87	91	74	105	99	82	107
27	2	75	90	68	110	82	-1.67	69	60	70	56	99	61
		84	104	88	87	70	-1.27	72	71	57	82	78	68
		95	95	92			.70	104	95	80	99	99	107
		106	99	108	91	97	.22	107	106	105	108	111	107
28	2	75	79	69	57	42	-1.10	64	60	70	47	69	57
		84	79	68	77	61	-1.42	68	62	75	73	78	64
		107	91	100	80	80	-2.91	73	57	75	73	82	88
29	2	68	77	54	55	41	-2.58	47	49	40	50	69	38
		77	90	70	95	68	-1.54	65	55	80	70	61	57
		101	83	86	76	75	-2.61	75	62	80	73	69	107
30	2	92	70	67	57	47	-3.00	57	53	75	59	86	79
		99	70	72	88	80	-2.97	69	57	87	73	99	83
		123	62	76	67	69	-2.31	78	68	66	78	86	107
31	2	66	93	62	100	71	-1.61	55	42	49	47	61	68
		75	99	74	95	68	-2.29	63	60	70	59	78	68
		104	90	96	86	90	-2.55	76	55	80	78	90	107
32	2	68	84	58	23	29	-2.29	49	53	66	53	52	27
		77	96	74	65	45	-.54	74	55	105	63	107	83
		88	94	84			-2.20	71	81	75	70	82	83
		101	68	70	81	71	-3.00	71	68	57	82	82	72
33	2	71	74	54	40	36	-3.00	47	42	53	39	61	49
		78	77	62	69	54	-2.10	64	81	57	63	65	83
		90	71	77			-2.15	71	62	70	78	86	93
		102	76	80	71	69	-2.79	74	60	62	82	99	93
34	2	75	90	68	110	82	-1.67	69	60	70	56	99	61
		84	104	88	87	70	-1.27	72	71	57	82	78	68
		95	95	92			-.70	104	95	80	99	99	107
		106	99	108	91	97	.22	107	106	105	108	111	107

13	14	15	16	17	18	19	20	21	22	23	24	25
55	64	88	68	26	1.6	2.0	2.0					
70	60	67	68	55	1.5	2.0	1.5					
70	69	64	101	64	1.6	2.1	1.9		1.9			
82	91	75	108	61	2.6	2.2	2.0	2.1	1.3	37.67	28.00	65.67
65	55	79	64	60	2.4	3.6	2.3					
76	73	79	68	72	1.7	2.6	1.8					
76	96	88	72	75	2.2	3.0	2.3		2.6			
104	91	75	64		2.8	3.2	2.5	2.6	3.1	37.33	14.75	52.08
65	91	75	61	33	3.2	3.9	2.8					
76	87	75	68	71	2.5	2.5	3.0					
70	105	102	94									
65	96	102	68	62	4.7	4.9	4.0	3.1	4.8			
42	55	102	72	28	2.1	2.8	2.2					
55	69	79	68	70	1.9	1.9	1.7					
76	73	67	81	86	4.1	3.5	3.7	3.3	4.7	35.33	17.25	52.58
42	33	67	31	55	2.9	3.6	3.4					
55	64	75	76	64	2.4	2.1	1.7					
50	55	102	108	72	3.1	3.2	1.9	2.2	4.0	28.00	11.00	39.00
46	28	45	50	57	2.2	3.1	2.1					
70	42	58	64	69	1.8	1.8	1.8					
70	96	64	81	74	3.1	3.6	2.4	1.7	3.3	31.00	15.00	46.00
65	42	58	64		2.2	2.6	2.5					
60	46	64	58		1.9	2.3	1.7					
55	69	79	81	69	2.9	3.3	3.0	2.4	5.7	17.33	19.00	36.33
46	42	58	40	38	2.2	2.5	2.1					
38	73	61	68	52	2.3	2.4	2.1					
33	78	79	61	82	2.3	2.4	2.1		2.4			
60	73	67	88	87	2.1	2.2	2.5	2.0	3.0	37.33	6.50	43.83
42	37	55	47	50	1.4	1.2	1.6					
46	46	61	61	53	1.3	1.4	1.6					
42	64	75	76	79	1.5	2.2	2.2		1.4			
55	60	88	76	72	2.2	2.4	2.4	1.5	2.3	31.67	19.50	51.17
65	91	75	61	33	3.2	3.9	2.8					
76	87	75	68	71	2.5	2.5	3.0					
70	105	102	94									
65	96	102	68	62	4.7	4.9	4.0	3.1	4.8	32.00	13.00	45.00

Primary Analysis

Section II: One Year PLDK

Group II: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	83	73	63	93	76	-1.19	70	60	105	66	90	64
		87	94	83	85	76	.05	93	90	94	78	90	107
		103	81	86			-.45	97	106	80	87	86	107
		114	79	92	81	90	-.14	101	106	105	92	103	107
2	1	75	101	78	80	55	-1.54	67	60	75	66	73	57
		86	99	86	79	63	.16	85	65	105	92	73	79
		98	96	96			-.11	91	68	105	108	94	88
		109	100	112	91	97	-.99	90	53	105	108	103	88
3	1	87	70	63	48	43	-2.14	62	36	62	53	73	49
		95	86	84	47	44	-.27	90	57	70	78	94	107
		106	73	80			-2.49	76	55	80	87	99	107
		119	73	88	67	69	-2.67	75	55	80	70	65	107
4	1	81	86	71	79	63	-1.23	69	90	87	66	69	57
		89	78	71	79	70	-.86	83	106	80	99	82	83
		101	77	80			-1.41	86	65	87	87	86	107
		113	86	100	81	82	-2.79	70	60	87	92	82	76
5	1	73	73	55	70	47	-1.67	60	57	94	47	48	61
		82	90	75	87	70	.07	82	55	105	78	86	64
		94	98	94			-1.34	78	57	75	78	94	79
		106	86	94	78	78	-1.05	90	85	105	73	111	107
6	1	69	108	74	102	74	.23	69	65	70	66	82	61
		77	121	92	108	80	.77	84	90	75	73	90	72
		90	101	92			.05	93	90	75	82	90	107
		100	100	102	97	92	-1.65	84	62	105	92	90	107
7	1	71	99	70	97	70	-2.98	51	55	57	44	44	64
		79	109	86	96	80	-.92	71	74	62	70	56	107
		91	104	96			-1.02	81	95	75	70	61	107
		102	90	94	78	78	-.39	97	106	94	92	103	107
8	1	72	93	67	80	55	-1.84	59	65	80	63	66	53
		81	90	74	81	64	-.85	71	68	62	78	78	72
		94	92	88			-.97	82	81	80	78	103	79
		115	82	88	80	80	-1.59	84	111	87	78	99	83
9	1	76	83	64	89	63	-3.00	57	55	62	50	65	31
		85	88	76	108	94	-.74	75	65	87	82	82	83
		97	82	82			-.27	90	95	70	78	94	107
		108	83	92	83	85	-1.71	83	74	80	92	99	83
10	1	78	86	68	89	71	-2.04	64	74	66	73	69	49
		86	101	88	108	94	-.34	79	74	57	87	86	79
		99	97	97			-1.17	88	65	80	87	94	107
		111	102	116	103	113	.10	105	85	80	108	107	107
11	1	74	60	47	55	40	-3.00	44	49	36	37	48	27
		84	67	59	48	43	-2.41	60	49	44	50	52	76
		108	66	73	66	62	-3.00	67	57	80	53	99	46
12	1	86	74	66	63	48	-2.73	57	51	57	70	52	61
		93	86	82	74	64	-2.26	70	90	66	87	65	83
		117	75	90	74	80	-2.55	75	55	94	78	78	79

13	14	15	16	17	18	19	20	21	22	23	24	25
88	64	84	47	53								
104	87	88	81	67	1.6	1.5	1.5					
104	87	102	72	71	2.3	2.4	1.6		1.3			
104	69	81	81	72	1.9	2.3	2.7	1.4	2.4	21.00	20.75	41.75
65	64	102	52	41								
88	91	88	108	63	1.9	1.9	1.6					
104	91	102	88	66	2.8	4.6	2.8		2.9			
95	78	88	108	78	3.1	3.3	3.3	3.1	4.0	15.33	21.00	36.33
55	73	102	68	68								
104	87	102	76	61	1.7	2.1	1.6					
46	33	102	76	68	2.1	1.8	2.3		2.1			
46	64	102	68	61	2.9	2.7	2.0	1.0	2.3	26.67	21.75	48.42
50	51	84	72	64								
82	55	79	81	70	1.8	2.4	1.5					
70	87	102	101	67	2.1	2.4	1.9		2.3			
46	69	94	76	61	3.1	2.2	2.8	1.1	2.2	26.33	12.50	38.83
60	46	84	52	66								
104	69	102	68	52	1.7	1.2	1.7					
88	55	102	76	47	2.2	1.9	2.1		1.8			
95	64	79	81	59	2.7	2.2	2.2	1.0	2.6	25.67	15.25	41.92
60	51	102	64	76								
104	69	102	64	61	1.8	1.7	1.6					
104	73	102	108	67	2.2	2.2	2.0		1.9			
104	69	75	76	80	2.7	3.0	3.0	3.2	3.5	27.00	21.50	48.50
88	33	35	55	80								
76	82	64	68	65	1.8	2.0	1.8					
95	87	75	72	68	2.4	2.8	1.9		3.6			
82	100	84	101	81	3.6	3.9	2.5	2.4	5.0	28.33	20.00	48.33
60	46	45	55	51								
95	64	88	64	58	1.6	1.5	1.6					
82	69	102	64	58	2.1	2.2	2.0		2.0			
70	82	88	61	76	2.6	2.2	3.0	2.6	2.6			
65	55	61	68	79								
82	78	61	72	63	1.3	1.3	1.5					
104	82	102	64	67	2.4	3.2	2.1		2.2			
104	73	102	76	78	3.6	3.5	3.2	3.4	4.0	21.00	17.25	38.25
65	60	94	31	69								
50	69	102	64	38	1.5	1.5	1.7					
65	87	102	68	73	1.8	1.7	2.0		2.1			
76	109	102	72	65	2.3	2.7	2.3	1.5	2.2	45.67	19.25	64.92
35	33	79	36	56								
55	46	102	68	62	1.1	1.3	1.1					
46	37	102	94	90				1.5	1.5	25.67	24.50	50.17
50	33	58	76	9								
70	55	55	68	56	3.2	3.9	2.2					
65	82	67	108	68	2.8	3.0	2.8	1.2	3.0	16.33	12.50	28.83

Section II: One Year PLDK

Group II: Regular Teaching (Cont.)

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
13	1	91	67	63	78	68	-3.00	53	62	80	50	44	72
		100	73	75	67	57	-.65	85	60	105	82	99	88
		111	72	82			-2.07	80	85	105	73	48	107
		122	70	86	77	85	-3.00	88	90	105	92	94	107
14	1	71	74	54	85	59	-1.61	60	106	66	47	44	42
		79	84	68	81	64	-2.29	63	57	80	56	73	79
		91	75	70			-1.56	76	60	105	78	86	88
		103	77	82	73	71	-2.13	79	65	105	99	56	107
15	1	68	75	53	61	44	-.98	60	90	66	53	61	57
		77	74	59	112	84	-1.97	74	71	70	66	69	79
		90	83	76			-2.90	66	57	80	73	78	68
		101	107	110	95	101	-2.73	74	77	105	87	82	76
16	1	82	71	60	67	52	-3.00	52	57	75	59	48	31
		90	87	80	79	70	-3.00	63	74	75	70	48	76
		103	87	92			-2.97	63	55	66	78	82	61
		115	78	92	68	71	-2.55	76	77	87	78	78	107
17	1	70	78	56	70	47	-3.00	46	73	32	39	61	27
		79	80	65	45	42	-3.00	44	53	70	56	56	27
		92	69	66			-3.00	61	62	80	66	94	42
		105	75	80	68	65	-3.00	64	55	70	66	86	88
18	2	76	85	66	65	45	-2.78	60	55	75	47	94	57
		84	81	70	87	70	-.70	75	60	66	82	103	107
		96	87	86			-1.29	79	65	75	99	103	107
		108	83	92	76	75	-.87	88	71	87	99	103	107
19	2	87	90	80	81	64	-2.14	62	53	75	78	43	61
		95	93	90	64	54	-1.94	73	57	80	92	73	107
		118	65	78			-2.07	80	62	66	92	82	107
		118	79	96	68	71	-2.43	76	60	66	92	94	79
20	2	81	93	76	65	50	-1.41	68	62	62	82	69	53
		89	98	88	81	71	-1.18	80	81	62	87	78	93
		101	79	82			-1.71	83	71	70	87	86	72
		113	98	114	81	82	-1.17	88	60	105	87	90	88
21	2	81	80	74	97	80	-.88	73	55	66	63	73	61
		89	102	92	100	84	1.34	112	77	80	92	103	107
		100	94	96			-.93	91	74	80	87	74	88
		113	114	132	108	122	-.33	97	90	87	92	111	107
22	2	72	94	68	104	76	-.93	65	60	70	56	69	79
		81	109	88	81	64	-.56	77	71	94	82	86	83
		93	97	92			-.43	88	77	62	92	111	107
		101	93	96	100	107	-.87	91	68	105	73	103	107
23	2	79	84	68	97	80	-.79	72	106	80	78	56	68
		87	88	78	75	59	-1.34	78	106	66	82	90	107
		100	94	96			-3.00	71	57	40	82	69	107
		111	82	94	86	90	-1.23	88	81	80	87	94	107
24	2	82	89	74	73	57	-.88	73	68	57	70	78	107
		90	87	80	90	82	-1.99	72	90	75	87	86	79
		103	81	86			-1.71	83	85	80	92	78	88
		115	91	108	87	99	-.51	96	106	105	87	103	107

13	14	15	16	17	18	19	20	21	22	23	24	25
46	37	61	61	40								
104	78	102	108	58	2.1	1.7	2.2					
82	60	75	81	88	2.1	1.8	1.8		1.9			
76	64	88	72		2.8	2.4	2.2	1.0	2.5	26.67	12.00	38.67
70	64	55	55	51								
88	91	88	108	61	1.5	1.2	1.2					
104	60	71	64	54	1.5	1.5	1.6					
60	82	102	64	68	1.6	1.2	2.6	1.0	1.5	16.00	19.50	35.50
50	28	75	52	21								
65	46	55	58	34	1.5	1.2	1.0					
55	55	64	64	48	1.2	1.5	1.3					
60	73	61	61	69	1.0	1.6	2.6	1.0	1.5	14.67	10.25	24.92
50	28	50	64									
46	33	55	76		1.6	1.4	1.6					
65	28	64	72	62								
70	37	64	76	67	2.4	2.3	1.8	1.0	1.5			
55	51	45	50	19								
35	28	30	68	13	1.5	1.3	1.5					
65	42	37	72	42	1.2	1.6	1.6					
55	28	45	101	52	2.1	1.2	2.2	1.0	1.5	5.67	16.25	21.92
46	64	52	52	35								
55	64	71	76	59	1.7	1.9	1.8					
99	78	75	64	40	2.7	4.6	3.2		4.0			
70	96	94	108	73	5.0	4.1	3.6	5.7	6.8	30.00	18.75	48.75
65	55	75	61	55								
76	28	67	76	85	1.9	2.3	2.2					
104	60	88	81	66	2.6	3.2	2.7		3.2			
104	60	84	76	69	2.6	2.6	2.5	1.0	3.3	21.33	19.75	41.08
35	60	102	76	61								
60	91	102	68	69	2.2	2.6	2.5					
55	87	102	81	69	2.9	4.6	3.3		4.0			
88	82	102	101	72	3.0	3.2	3.2	2.8	4.0	21.67	12.00	33.67
104	82	102	58	54								
104	105	102	108	81	2.1	2.4	2.6					
104	109	102	64	69	3.2	4.6	3.5		4.9			
104	109	88	68	77	4.0	4.3	4.7	2.6	4.9	36.00	24.25	60.25
65	46	71	68	57								
65	60	84	76	40	1.9	2.0	1.9					
65	82	84	107	72	2.7	3.2	2.8		3.2			
65	91	84	81	68	3.4	3.5	3.0	3.1	3.5	33.33	11.50	44.83
82	33	75	81	83								
104	28	84	72	61	1.6	1.5	1.8					
60	51	94	94	72	2.0	1.9	1.9		2.3			
70	82	88	94	72	2.9	2.7	2.6	1.7	2.9	23.67	28.50	52.17
76	55	94	76	69								
50	55	79	55	52	2.0	1.9	2.9					
70	78	102	68	69	2.7	2.6	3.0		2.3			
65	87	94	68	68	3.1	3.5	3.2	2.0	2.4	19.00	22.50	41.50

Section II: One Year PLDK

Group II: Regular Teaching (cont.)

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
25	2	78	84	67	61	47	-3.00	58	55	49	59	69	46
		86	87	76	79	63	-.52	77	95	70	78	56	64
		99	87	88			-1.41	86	90	80	82	82	64
		111	86	98	76	75	-1.35	86	106	80	78	90	88
26	2	79	134	104	122	109	1.08	88	106	57	108	107	107
		88	130	114	130	121	.65	103	106	66	99	103	88
		111	149	170	150	195	.76	112	106	94	108	111	83
27	2	83	53	47	34	36	-3.00	48	40	49	42	61	53
		91	71	67	66	55	-3.00	56	55	62	50	56	46
		114	60	70	68	71	-2.67	75	60	75	63	48	107
28	2	84	90	78	95	78	-2.00	63	53	94	78	44	57
		94	94	90	92	84	-1.67	75	62	80	82	99	61
		117	92	110	93	107	-.04	104	106	105	87	90	107
29	2	91	86	80	86	78	-2.85	66	57	66	78	73	61
		98	83	84	86	78	-2.85	73	51	80	87	82	83
		122	85	106	79	87	-.69	93	62	105	87	94	107
30	2	76	93	71	112	84	-.29	76	106	80	66	56	88
		83	106	88	108	94	.25	86	95	87	92	61	107
		95	105	104			.05	93	106	80	87	82	107
		108	99	110	88	92	-.08	102	108	87	108	86	107
31	2	80	71	59	52	44	-2.10	64	60	75	53	82	72
		87	83	74	83	66	-.65	85	85	87	70	56	83
		111	84	96	86	90	-.63	94	106	87	92	86	107
32	2	82	71	60	77	61	-2.23	62	53	53	59	61	64
		90	82	76	69	59	-1.13	80	106	87	82	69	53
		108	106	118	85	87	-.57	95	90	57	108	94	107
33	2	80	86	70	71	55	-1.60	67	60	36	73	73	64
		88	80	72	85	68	-.65	85	90	80	87	78	88
							-1.81	90	65	80	82	107	83
		113	98	114	85	97	-.99	90	90	87	82	86	107
34	2	99	80	82	62	52	-2.55	76	68	66	82	61	72
		106	88	96	80	80	-.02	103	85	105	99	73	107
		131	90	120	79	101	.16	106	90	94	92	103	107

13	14	15	16	17	18	19	20	21	22	23	24	25
46	69	67	55	62								
55	69	102	88	36	1.7	1.6	1.9					
65	73	102	101	68	1.7	2.2	1.6		2.3			
60	64	102	108	69	2.7	2.8	2.2	1.7	2.6	17.33	14.75	32.08
70	91	71	64	82								
104	114	102	108	61	2.2	2.6	2.5					
104	109	102	108	91	7.1	5.8	7.9	7.9	6.0	38.33	21.00	59.33
46	33	61	44	56								
46	55	71	58	67	1.2	1.4	1.2					
50	55	102	108	67	2.7	2.1	2.6	1.7	2.2	29.67	16.75	46.42
60	69	71	58	92								
46	91	64	108	70	2.2	2.8	2.5					
46	100	102	108	72	3.7	3.7	3.7	3.9	5.0	22.67	7.00	29.67
82	64	75	52	68								
88	64	94	61	64	2.1	1.9	1.7					
88	82	102	72	78	3.1	3.2	3.5	2.9	3.9	39.67	35.75	75.42
104	73	61	68	73								
82	82	75	81	65	1.9	1.6	1.5					
95	100	84	72		2.0	2.1	2.3		3.2			
88	105	84	108	90	3.1	3.2	3.5	2.6	4.6	33.33	20.50	53.83
55	55	64	61	63								
76	86	102	108	51	1.5	1.4	1.7					
65	78	102	88	86	3.1	3.1	2.5	2.2	3.5	42.33	20.75	63.08
55	55	102	36	35								
70	82	94	76	66	1.8	2.4	1.9					
76	105	102	72	81	4.8	5.1	3.8	4.0	6.8	23.33	16.75	40.08
65	64	102	64	59								
104	78	102	64	63	1.9	1.9	1.9					
46	100	102	108		2.3	3.4	3.3		4.0			
95	100	104	72	86	3.1	3.9	3.6	3.8	3.6	18.00	20.25	38.25
65	64	102	68	69								
76	87	102	108	68	2.0	2.4	1.9					
65	109	102	81		4.5	4.4	3.9	3.5	5.0			

Primary Analysis

Section III: Two Year PLDK

Group I: ITA

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	80	94	76	75	59	-1.16	69	106	80	66	73	61
		87	105	92	95	78	.16	83	57	94	99	44	88
		99	103	104			.10	105	106	94	99	86	107
		112	97	112	83	85	.52	112	85	105	108	86	107
2	1	69	102	70	87	61	-.64	62	57	57	66	82	49
		76	109	82	97	70	-.16	91	106	62	78	82	88
		89	95	86			-.63	94	106	105	108	90	83
		101	107	110	81	71	-.08	102	106	94	108	94	76
3	1	79	79	104	69	54	-3.00	57	57	62	63	48	46
		87	103	90	71	55	-3.00	62	95	75	59	56	53
		99	85	86			-3.00	72	57	66	73	99	107
		112	83	96	80	80	-1.41	86	106	80	99	99	76
4	1	75	87	66	93	66	-2.01	58	68	70	59	52	49
		83	101	84	124	112	-1.10	71	77	57	82	86	57
		95	93	90			-1.02	81	85	70	82	86	107
		107	91	100	83	85	-1.23	88	106	94	96	90	93
5	1	74	67	52	87	61	-3.00	51	35	62	47	48	49
		83	85	72	89	71	-.47	78	71	66	70	94	64
		107	86	94	96	103	-.93	91	106	105	99	76	68
6	2	76	85	66	85	59	-2.16	63	60	53	66	86	61
		83	114	94	99	82	-.02	83	85	57	73	90	107
		95	101	98			-.81	84	77	80	82	86	107
		108	99	110	90	84	-.87	91	85	94	92	103	107
7	2	73	83	62	59	43	-2.41	55	55	62	56	90	68
		81	96	78	73	57	-.23	76	55	87	78	69	88
		93	102	96			-.45	97	71	70	92	90	107
		106	96	104	86	90	-1.77	82	95	57	108	90	72
8	2	72	88	64	76	52	-1.84	59	46	75	53	48	93
		80	105	84	79	63	-.98	71	44	87	73	82	79
		93	110	104			-.48	87	95	70	92	73	107
		105	104	112	81	82	-.27	99	106	94	87	99	107

13	14	15	16	17	18	19	20	21	22	23	24	25
55	60	79	55	85	2.7	2.8	2.7					
104	78	102	108	65	2.5	2.6	2.2					
104	91	88	81	93	3.5	3.9	4.0		3.2			
104	109	101	108	93	3.4	3.5	3.3	3.7	4.6	25.00	19.00	44.00
60	51	67	68	57	2.1	3.9	2.3					
95	64	102	88	61	2.2	3.9	2.2					
104	87	102	76	68	3.2	3.2	3.0		2.9			
104	96	94	108	73	3.4	2.9	2.6	2.1	3.5	34.00	14.25	48.25
70	51	52	61	47	1.7	2.8	1.8					
55	28	75	58	61	1.8	2.6	2.0					
82	28	84	64	68	2.0	2.6	2.2		3.0			
70	82	79	88	77	2.7	2.1	2.6	3.7	2.6	14.67	11.50	26.17
46	55	45	68	48	2.5	3.1	1.9					
82	96	58	61	66	2.1	2.1	2.3					
88	91	50	94	65	2.9	3.6	3.0		3.8			
95	73	67	88	87	3.4	3.0	3.1	4.0	4.6	14.33	12.00	26.33
88	37	67	40	32	3.2	3.9	3.4					
104	69	102	68	30	3.2	3.6	2.5					
					3.2	4.9	4.8		4.2			
104	78	75	108		4.7	3.9	3.4	5.1	3.8	15.33	18.50	33.83
65	55	58	68	52	2.9	3.9	3.2					
104	73	67	81	70	2.7	3.9	3.7					
70	82	75	88	66	3.3	4.6	4.0		4.7			
76	105	71	88	92	4.0	3.9	3.9	4.1	4.8			
46	33	52	31	67	2.7	3.1	2.5					
82	60	102	81	65	3.2	2.8	3.4					
76	96	102	101	86	3.3	4.9	3.5		4.2			
70	91	75	94	92	4.0	4.1	3.4	4.0	5.5	34.00	14.50	48.50
38	42	71	64	39	2.2	3.6	1.9					
65	60	102	61	67	2.4	2.8	1.9					
65	78	88	81	62	3.3	4.9	3.7		3.8			
46	87	102	108	87	4.8	4.0	3.0	3.4	5.7	23.33	18.75	42.08

Primary Analysis

Section III: Two Year PLDK

Group II: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	75	105	86	108	94	-1.23	69	57	105	63	61	107
		84	93	86	90	82	.34	88	68	66	82	78	107
		96	92	90			.59	102	106	87	92	94	107
		107	106	116	91	97	-.14	101	71	105	99	73	107
2	1	88	84	76	97	80	-2.58	68	65	94	66	65	68
		95	88	86	98	94	.48	100	77	105	99	78	107
		107	91	100			-.57	95	71	105	87	86	107
		120	96	118	84	94	.46	112	106	105	99	99	107
3	1	83	79	66	75	59	-2.27	61	65	49	56	61	72
		92	83	78	74	84	-2.74	67	74	57	70	40	68
		103	75	80			-2.91	73	68	49	70	44	102
		115	75	88	73	78	-2.13	79	85	87	82	90	68
4	1	91	80	75	83	74	-1.51	77	106	87	92	82	68
		99	105	106	100	96	.43	99	106	87	73	111	107
		111	102	116			.82	112	90	94	108	107	107
		123	103	130	112	136	1.48	112	106	105	99	107	109
5	2	81	70	59	45	42	-3.00	112	38	53	42	69	38
		89	83	76	61	47	-1.99	51	95	80	59	61	107
		90	73	68			-1.61	73	65	66	70	90	107
		111	70	80	80	80	-1.47	76	60	80	78	111	107
6	2	69	84	59	72	48	-2.29	56	55	66	39	78	42
		78	89	70	80	55	-1.66	66	57	75	70	99	53
		100	74	76			-2.43	77	60	104	78	86	76
		90	103	94	91	73	-1.08	81	57	87	87	90	107
7	2	79	90	72	36	36	-2.41	62	53	44	59	86	38
		88	99	88	73	57	-1.55	67	62	62	78	90	72
		99	97	98			-2.13	79	65	57	82	99	79
		111	95	108	81	82	-1.47	85	77	70	78	90	107
8	2	90	77	71	88	80	-2.74	67	57	75	70	52	107
		98	77	78	86	78	-1.77	74	77	66	78	82	83
		110	69	78			-1.83	82	71	80	82	99	88
		122	74	92	81	90	-1.05	90	106	105	87	90	79

13	14	15	16	17	18	19	20	21	22	23	24	25
50	46	102	68	60								
104	37	102	108	66	1.9	2.2	2.6					
82	96	102	88	91	1.7	2.0	2.1		2.3			
60	107	102	108	72	2.9	2.5	2.6	1.1	2.2	36.67	15.00	51.67
70	64	67	64	66								
95	73	84	88	70	1.7	1.7	2.0					
88	96	102	88	68	1.9	1.8	2.1		1.9			
76	91	102	108	72	3.1	2.3	3.3	1.4	2.0	59.00	21.25	80.25
76	28	75	61	76								
88	51	94	64	63	1.8	2.1	1.8					
104	78	94	68	65	2.0	2.4	2.7		3.0			
76	64	102	68	74	2.8	2.7	3.1	2.2	2.9	52.00	11.25	63.25
76	78	64	58	66								
95	73	71	108	90	1.7	1.6	1.7					
104	105	71	108	69	2.1	2.2	1.9		2.3			
104	91	88	108	92	2.4	2.6	3.4	3.1	3.1	44.67	14.25	58.92
42	37	102	47	81								
70	37	94	76	83	2.0	1.8	2.3					
70	55	102	64	91	2.6	2.8	2.1		2.3			
60	51	102	76	91	3.0	2.6	3.0	1.2	3.5	26.67	17.25	43.92
60	33	61	68	74								
70	28	75	76	57	1.9	2.2	1.9					
104	78	84	68	77	1.9	2.6	2.0		2.3			
88	64	79	76	84	2.5	3.5	2.7	1.2	3.1	23.67	19.25	42.92
65	46	75	101	74								
50	33	88	68	83	1.9	2.5	2.5					
76	64	94	108	87	2.7	4.3	3.3		3.8			
55	91	102	108	91	3.1	3.2	3.3	3.1	4.6	23.67	19.25	42.92
88	60	52	68	65								
104	33	75	81	63	1.7	1.8	1.4					
70	73	75	108	74	2.1	2.4	2.2		2.6			
55	100	79	108	86	2.0	3.1	3.6	2.4	2.9			

Section IV: Three Year PLDK

Group I: ITA

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	69	100	69	95	68	-.13	70	57	66	66	65	72
		77	88	69	102	74	.52	82	55	105	87	56	107
		89	102	92			-.27	90	57	105	108	94	107
		100	108	98	114	116	-.99	91	53	105	92	94	107
2	1	78	96	75	106	91	.27	80	74	80	108	82	88
		87	100	88	114	100	.43	89	106	105	108	99	107
		99	111	112			.26	112	95	87	108	99	107
		111	121	138	119	136	.64	112	95	94	108	111	107
3	1	74	91	68	100	71	-1.10	64	49	80	59	82	49
		83	95	80	104	89	-1.04	70	77	75	59	52	107
		95	110	106			-.70	85	68	62	99	99	72
		106	101	110	109	124	.16	112	96	87	108	97	107
4	1	77	88	64	106	78	-2.53	61	65	57	63	56	61
		86	88	77	93	76	-.11	81	77	80	92	78	107
		98	94	92			-1.24	79	60	49	92	94	107
		110	92	104	83	85	-.33	98	90	94	99	111	88
5	1	78	98	77	95	78	-.36	75	60	105	73	82	64
		86	101	88	100	84	.02	84	85	94	82	56	68
		108	123	136	111	125	1.30	112	90	105	108	103	107
6	1	73	105	76	110	82	.44	75	81	57	73	61	107
		83	106	88	108	94	.07	84	74	94	87	82	64
		105	106	114	103	113	.16	106	106	105	99	111	107
7	1	69	99	68	78	54	-1.90	58	53	80	56	56	57
		78	111	86	77	61	.27	80	68	87	87	86	107
		95	91	88			-.48	87	106	70	82	82	83
		101	101	104	96	90	-1.35	86	74	80	99	94	107
8	2	73	73	55	65	45	-1.61	60	85	57	50	65	61
		82	81	68	65	50	-2.14	62	77	66	56	44	76
		93	79	76			-1.94	73	53	75	70	90	93
		104	98	104	76	75	-1.65	84	62	70	87	90	107
9	2	74	97	72	106	78	-.53	67	53	87	59	90	53
		82	92	76	95	78	-.83	74	55	75	82	86	57
		94	98	94			.22	96	106	80	87	86	93
		105	114	122	100	107	.16	106	95	105	99	99	93
10	2	69	108	74	89	63	.33	70	53	62	66	56	79
		78	111	86	95	68	-.23	75	57	66	78	90	83
		90	99	90			.11	91	74	87	87	86	107
		99	117	120	97	92	.16	106	95	105	87	94	107
11	2	77	96	74	110	82	-.29	76	85	66	70	65	107
		87	90	80	102	87	-.43	77	85	75	78	86	93
		98	92	92			-1.53	85	85	105	68	94	107
		109	107	120	105	116	.08	109	106	105	92	99	107
12	2	73	105	76	106	78	1.18	91	77	75	87	56	79
		82	118	96	106	91	.11	84	68	49	87	69	107
		95	112	108			.86	107	90	70	108	90	107
		106	118	128	106	120	2.20	112	95	95	108	107	107

13	14	15	16	17	18	19	20	21	22	23	24	25
65	96	88	72	88	2.9	3.9	2.9					
104	78	88	76	75	2.1	2.6	2.7					
88	96	88	72	92	3.3	4.3	3.3		4.4			
88	105	79	81	85	4.5	4.0	4.2	4.0	4.8	46.33	31.00	77.33
104	73	71	58	80	3.2	3.9	3.7					
76	82	75	72	79	2.9	3.6	3.4					
104	82	102	108	90	4.2	4.9	4.0		4.2			
104	105	102	94	93	5.3	5.1	4.2	3.8	5.5	58.67	34.75	93.42
60	73	75	61	64	2.9	3.9	2.5					
50	78	75	58	70	2.7	2.5	2.6					
60	96	102	108	65	3.0	4.3	4.2		4.2			
95	109	84	68	82	5.0	4.3	3.4	1.4	4.2	33.67	21.25	54.92
104	37	55	55	60	3.2	3.9	3.0					
104	82	71	64	71	3.2	3.1	2.5					
104	91	64	68	92	3.3	4.9	3.3		4.9			
104	109	75	94	90	4.3	4.6	3.5	4.0	5.5	31.33	19.00	50.33
76	73	102	68	63	2.7	3.1	3.7					
104	91	102	55	67	3.2	3.6	3.9					
				70	3.9	4.6	3.0		3.5			
104	109	102	81	72	5.0	5.3	4.7	4.7	6.5	32.00	19.00	51.00
70	73	67	94	69	3.2	3.9	3.2					
104	96	88	68	74	3.2	3.9	3.0					
				70	3.9	4.6	4.7		2.7			
104	109	67	88	70	5.9	4.9	4.9	4.0	5.5	20.67	27.75	48.42
65	55	55	55	64	2.5	3.9	2.9					
76	87	61	72	69	2.4	2.5	2.1					
70	91	84	108	77	3.7	4.3	3.0		4.0			
55	96	84	108		3.7	3.9	2.7	3.2	4.7	15.67	22.25	37.92
55	28	64	64	31	2.7	3.9	3.2					
55	42	67	64	65	2.7	2.5	2.5					
55	55	102	88	56	2.9	3.6	3.2		4.7			
95	82	88	94	88	2.9	3.6	3.6	4.7	2.3	23.00	14.00	37.00
46	55	102	68	33	3.2	3.6	3.7					
104	82	79	68	71	2.7	3.6	2.8					
82	100	102	108	78	3.3	4.6	4.4		4.0			
65	91	102	108	93	5.0	4.9	4.3	3.9	5.1	44.33	31.00	75.33
70	51	102	81	57	2.9	2.8	3.0					
76	82	102	64	81	2.9	2.5	2.2					
55	78	102	88	75	3.3	3.9	3.2		3.4			
95	109	102	76	87	3.4	3.9	3.3	2.2	4.2	38.33	15.00	53.33
70	96	75	61	67	2.2	2.6	2.3					
82	78	64	64	81	2.5	1.8	2.9					
70	91	64	68	92	3.3	2.7	2.2		2.2			
88	100	75	81	93	3.2	4.0	3.8	2.6	2.6	30.33	16.00	46.33
65	105	102	61	34	3.2	3.9	3.9					
82	100	102	76	69	3.2	3.9	3.7					
76	114	102	108	76	4.2	4.9	4.7		4.4			
104	114	102	108	88	5.9	5.1	5.3	5.1	5.5			

Primary Analysis

Section IV: Three Year PLDK

Group I: ITA (cont.)

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
13	2	74	97	72	108	80	-.02	71	65	57	82	56	79
		83	95	80	100	84	.16	85	60	80	92	78	107
		95	112	108			.97	112	95	66	108	103	107
		107	108	118	105	116	.82	112	81	105	108	86	107
14	2	68	97	66	97	70	-.35	64	57	80	59	73	49
		77	98	76	108	80	.14	78	81	94	87	61	88
		89	100	90			-.86	83	81	40	78	86	107
		99	113	116	111	110	.08	102	85	94	92	107	107

13	14	15	16	17	18	19	20	21	22	23	24	25
50	91	61	108	43	3.2	3.6	3.4					
55	87	75	108	71	3.2	3.1	3.7					
70	105	102	108	92	4.9	4.9	4.0		4.2			
104	114	79	108	91	4.7	4.9	4.5	5.7	5.3	38.00	19.50	57.50
46	73	102	47	39	2.7	3.9	2.8					
46	87	102	61	61	2.7	2.4	2.5					
55	96	102	72	57	3.2	4.6	3.3		3.6			
88	105	102	72	90	4.1	5.1	4.4	3.1	5.3	43.00	13.50	56.50

Section IV: Three Year PLDK

Group II: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	73	111	80	119	91	.95	79	90	87	78	82	107
		81	111	90	110	96	-.16	81	106	94	78	56	68
		93	102	96			.05	93	95	105	82	86	107
		105	101	106	114	128	.70	112	106	105	99	111	107
2	1	85	90	78	85	68	-.88	73	71	105	87	56	64
		92	94	88	86	78	-.43	88	90	105	108	86	93
		103	97	102			.04	104	106	105	108	82	107
		116	92	110	102	124	.46	112	106	105	108	99	107
3	1	72	153	106	123	96	.95	86	85	94	92	82	107
		80	162	126	122	109	2.88	112	106	105	108	86	107
		92	134	124			1.40	112	106	94	108	107	107
		104	149	158	121	141	1.30	112	106	105	108	103	107
4	1	79	109	86	106	91	.33	81	85	80	87	65	107
		84	112	94	112	98	-.16	81	95	94	87	52	107
		99	111	112			-.08	102	106	87	99	90	107
		111	114	130	113	127	.52	112	106	105	108	74	107
5	1	80	97	78	114	100	.89	86	106	80	78	90	61
		88	94	84	102	87	.38	98	106	105	87	69	76
		102	90	94			.40	112	106	105	92	94	107
		100	94	96	105	116	.16	103	106	94	108	78	107
6	1	71	88	63	100	71	-.70	66	49	62	63	90	79
		78	100	78	110	82	.02	78	68	57	92	86	107
		92	114	106			.91	109	90	80	82	111	107
		103	101	108	86	90	.40	112	106	66	108	78	107
7	1	78	86	68	83	66	-3.00	55	55	66	53	56	53
		86	82	72	97	80	-1.06	72	71	75	78	61	88
		99	78	80			.11	94	90	105	87	90	107
		110	81	92	105	116	-.14	101	95	70	92	86	107
8	1	80	94	76	97	70	-.54	75	62	105	78	86	83
		87	105	82	99	82	.16	85	62	94	82	78	107
		99	93	94			-.27	99	74	105	92	99	107
		110	97	110	106	120	.88	112	106	105	108	111	107
9	1	73	111	80	104	76	.95	79	77	94	92	69	83
		80	127	100	106	91	2.45	105	106	94	99	90	107
		92	125	116			1.24	112	95	105	108	99	107
		104	130	138	109	124	1.36	112	85	105	108	107	107
10	2	77	93	72	80	55	-2.10	64	46	105	70	73	53
		86	92	80	95	68	-.61	76	106	105	70	90	42
		98	98	98			-.43	88	65	94	108	94	107
		110	97	110	85	87	-.33	58	106	87	108	91	107
11	2	70	113	78	95	68	-.36	69	57	53	63	65	107
		78	119	92	95	78	-.29	76	68	57	82	82	107
		91	118	108			-.43	88	85	70	99	78	107
		102	108	112	86	90	.28	109	106	94	108	94	107
12	2	71	99	70	72	48	-.30	69	65	94	66	94	72
		79	109	86	77	61	.83	85	65	80	82	94	107
		93	119	110			-.27	90	106	87	82	107	107
		103	110	114	88	102	-.87	91	106	94	87	90	93

13	14	15	16	17	18	19	20	21	22	23	24	25
88	91	75	47	84								
104	78	102	72	61	1.7	1.5	1.5					
95	100	79	68	75	1.5	2.9	1.9		1.9			
104	100	102	81	79	2.7	2.8	3.2	2.2	2.0	32.00	35.50	67.50
55	64	102	72	60								
82	73	84	88	64	1.6	1.8	1.5					
104	91	102	81	70	2.0	2.7	2.2		2.4			
104	91	102	108	73	2.8	2.9	3.5	3.5	2.7	32.67	19.00	51.67
82	96	71	72	65								
104	82	102	94	65	1.4	1.6	1.7					
104	100	102	81	80	2.2	2.2	3.0		2.4			
104	109	102	76	87	2.8	2.9	3.5	3.5	2.7	49.00	22.75	71.75
104	64	102	52	63								
95	96	102	50	62	1.7	1.4	1.5					
95	100	84	72	63	3.1	2.4	3.5		2.6			
82	114	102	68	80	4.7	5.1	4.7	4.1	3.5	39.33	24.25	63.58
104	73	102	64	76								
65	100	102	108	75	1.8	1.8	2.0					
70	87	102	76		3.0	4.6	2.8		4.7			
82	96	102	108	80	4.1	4.7	4.3	3.3	5.3			
65	69	94	50	74								
76	73	75	61	73	1.7	1.6	1.7					
104	91	102	94	82	2.7	2.1	2.2		2.5			
104	91	84	108	91	3.2	3.5	3.7	3.2	4.0	54.33	26.00	80.33
42	55	45	64	43								
60	60	67	94	75	1.6	1.5	1.6					
104	87	75	76	72	3.0	2.5	2.6		2.7			
82	105	88	76	92	3.5	3.2	4.0	3.2	3.3	36.67	13.25	49.92
88	73	71	50	68								
104	91	84	72	69	1.9	1.8	1.8					
95	96	84	88	90	3.3	1.8	4.4		3.4			
104	105	102	108	91	4.7	4.3	4.9	5.3	5.1	51.67	30.50	82.17
95	91	71	61	53								
95	82	102	76	64	1.7	1.7	1.7					
104	96	102	81	59	3.1	3.0	3.4		3.8			
104	105	102	108	88	3.8	4.3	5.1	4.6	3.8	42.33	21.75	64.08
50	64	61	76	40								
70	82	71	76	48	1.9	1.5	2.0					
82	87	71	108	63	2.8	3.4	3.4		2.9			
88	96	79	101	93	3.7	3.9	3.4	4.6	3.5	21.33	26.50	47.83
95	64	75	61	56								
55	73	71	72	68	1.7	1.7	1.6					
65	82	102	68	74	2.3	2.4	2.5		2.9			
70	100	102	88	92	2.7	2.7	3.4	5.1	3.0	30.33	13.50	43.83
35	42	102	68	54								
65	82	79	94	73	1.7	2.2	1.7					
60	64	84	88	74	2.8	3.2	3.3		3.8			
70	100	84	108	91	3.8	3.5	3.8	4.0	4.7	53.67	22.75	76.42

Section IV: Three Year PLDK cont.

Group II: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
13	2	77	94	73	104	76	-.54	74	60	87	87	65	83
		85	105	90	100	84	.38	88	74	105	92	69	107
		98	106	106			.16	106	106	87	108	73	107
		97	98	98	103	113	1.48	112	106	80	99	103	107
14	2	71	86	62	80	55	-.70	66	60	75	59	52	83
		79	95	76	91	74	-.36	75	71	75	78	78	83
		91	104	96			.54	101	65	105	82	99	107
		102	96	100	99	94	1.56	112	90	105	99	103	107

13	14	15	16	17	18	19	20	21	22	23	24	25
82	69	94	61	72								
104	69	84	81	77	1.7	1.9	1.7					
104	73	102	101	82	3.3	2.9	3.4		3.8			
95	91	102	108	92	3.4	3.6	3.8	4.0	4.0	41.00	20.75	61.75
70	55	94	58	84								
65	55	102	68	61	1.7	1.8	1.7					
104	78	102	81	73	2.2	2.6	2.5		2.5			
88	91	102	101	77	2.9	3.5	3.9	2.8	2.7	46.00	21.50	67.50

Personnel Analysis

Section V: One Year PLDK

Group IV: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	83	73	63	93	76	-1.19	70	60	105	66	90	64
		87	94	83	85	76	.05	93	90	94	78	90	107
		103	81	86			-.45	97	106	80	87	86	107
		114	79	92	81	90	-.14	101	106	105	92	103	107
2	1	75	101	78	80	55	-1.54	67	60	75	66	73	57
		86	99	86	79	63	.16	85	65	105	92	73	79
		98	96	96			-.11	91	68	105	108	94	88
		109	100	112	91	97	-.99	90	53	105	108	103	88
3	1	87	70	63	48	43	-2.14	62	36	62	53	73	49
		95	86	84	47	44	-.27	90	57	70	78	94	107
		106	73	80			-2.49	76	55	80	87	99	107
		119	73	88	67	69	-2.67	75	55	80	70	65	107
4	1	81	86	71	79	63	-1.23	69	90	87	66	69	57
		89	78	71	79	70	-.86	83	106	80	99	82	83
		101	77	80			-1.41	86	65	87	87	86	107
		113	86	100	81	82	-2.79	70	60	87	92	82	76
5	1	73	73	55	70	47	-1.67	60	57	94	47	48	61
		82	90	75	87	70	.07	82	55	105	78	86	64
		94	98	94			-1.34	78	57	75	78	94	79
		106	86	94	78	78	-1.05	90	85	105	73	111	107
6	1	69	108	74	102	74	.23	69	65	70	66	82	61
		77	121	92	108	80	.77	84	90	75	73	90	72
		90	101	92			.05	93	90	75	82	90	107
		100	100	102	97	92	1.65	84	62	105	92	90	107
7	1	71	99	70	97	70	-2.98	51	55	57	44	44	64
		79	109	86	96	80	-.92	71	74	62	70	56	107
		91	104	96			-1.02	81	95	75	70	61	107
		102	90	94	78	78	-.39	97	106	94	92	103	107
8	1	72	93	67	80	55	-1.84	59	65	80	63	65	53
		81	90	74	81	64	-.85	71	60	62	78	78	72
		94	92	88			-.97	82	81	80	78	103	79
		115	82	88	80	80	-1.59	94	111	87	78	99	83
9	1	76	83	64	89	63	-3.00	57	55	62	50	65	31
		85	88	76	108	94	-.74	75	65	87	82	82	83
		97	82	82			-.27	90	95	70	78	94	107
		108	83	92	83	85	-1.71	83	74	80	92	99	83
10	1	78	86	68	89	71	-2.04	64	74	66	73	69	49
		86	101	88	108	94	-.34	79	74	57	87	86	79
		99	97	97			-1.17	88	65	80	87	94	107
		111	102	116	103	113	.10	105	85	80	108	107	107
11	1	71	74	54	85	59	-1.61	60	106	66	47	44	42
		79	84	68	81	64	-2.29	63	57	80	56	73	79
		91	75	70			-1.56	76	60	105	78	86	88
		103	77	82	73	71	-2.13	79	65	105	99	56	107

3

13	14	15	16	17	18	19	20	21	22	23	24	25
88	64	84	47	53								
104	87	88	81	67	1.6	1.5	1.5					
104	87	102	72	71	2.3	2.4	1.6		1.3			
104	69	81	81	72	1.9	2.3	2.7	1.4	2.4	21.00	20.75	41.75
65	64	102	52	41								
88	91	88	108	63	1.9	1.9	1.6					
104	91	102	88	66	2.8	4.6	2.8		2.9			
95	78	88	108	78	3.1	3.3	3.3	3.1	4.0	15.33	21.00	36.33
55	73	102	68	68								
104	87	102	76	61	1.7	2.1	1.6					
46	33	102	76	68	2.1	1.8	2.3		2.1			
46	64	102	68	61	2.9	2.7	2.0	1.0	2.3	26.67	21.75	48.42
50	51	84	72	64								
82	55	79	81	70	1.8	2.4	1.5					
70	87	102	101	67	2.1	2.4	1.9		2.3			
46	69	94	76	61	3.1	2.2	2.8	1.1	2.2	26.33	12.50	38.83
60	46	84	52	66								
104	69	102	68	52	1.7	1.2	1.7					
88	55	102	76	47	2.2	1.9	2.1		1.8			
95	64	79	81	59	2.7	2.2	2.2	1.0	2.6	25.67	16.25	41.92
60	51	102	64	76								
104	69	102	64	61	1.8	1.7	1.6					
104	73	102	108	67	2.2	2.2	2.0		1.9			
104	69	75	76	80	2.7	3.0	3.0	3.2	3.5			
88	33	35	55	80								
76	82	64	68	65	1.8	2.0	1.8					
95	87	75	72	68	2.4	2.8	1.9		3.6			
82	100	84	101	81	3.6	3.9	2.5	2.4	5.0	28.33	20.00	48.33
60	46	45	55	51								
95	64	88	64	58	1.6	1.5	1.6					
82	69	102	64	58	2.1	2.2	2.0		2.0			
70	82	88	61	76	2.6	2.2	3.0	2.6	2.6	27.00	20.50	47.50
65	55	61	68	79								
82	78	61	72	63	1.3	1.3	1.5					
104	82	102	64	67	2.4	3.2	2.1		2.2			
104	73	102	76	78	3.6	3.5	3.2	3.4	4.0	21.00	17.25	38.25
65	60	94	31	69								
50	69	102	64	38	1.5	1.5	1.7					
65	87	102	68	73	1.8	1.7	2.0		2.1			
76	109	102	72	65	2.3	2.7	2.3	2.2	1.5	45.67	19.25	64.92
70	64	55	55	51								
88	91	88	108	61	1.5	1.2	1.2					
104	60	71	64	54	1.5	1.5	1.6					
60	82	102	64	68	1.6	1.2	2.6	1.0	1.5	16.00	19.50	35.50

Personnel Analysis

Section V: One Year PLDK (cont.)

Group IV: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
12	1	68	75	53	61	44	-.98	60	90	66	53	61	57
		77	74	59	112	84	-1.97	74	71	70	66	69	79
		90	83	76			-2.90	66	57	80	73	78	68
		101	107	110	95	101	-2.73	74	77	105	87	82	76
13	1	70	78	56	70	47	-3.00	46	73	32	39	61	27
		79	80	65	45	42	-3.00	44	53	70	56	56	27
		92	69	66			-3.00	61	62	80	66	94	42
		105	75	80	68	65	-3.00	64	55	70	66	86	88
14	1	74	60	47	55	40	-3.00	44	49	36	37	48	27
		84	67	59	48	43	-2.41	60	49	44	50	52	76
		108	66	73	66	62	-3.00	67	57	80	53	99	46
15	1	86	74	66	63	48	-2.73	57	51	57	70	52	61
		93	86	82	74	64	-2.26	70	90	66	87	65	83
		117	75	90	74	80	-2.55	75	55	94	78	78	79
16	1	82	71	60	67	52	-3.00	52	57	75	59	48	31
		90	87	80	79	70	-3.00	63	74	75	70	48	76
		103	87	92			-2.97	63	55	66	78	82	61
		115	78	92	68	71	-2.55	76	77	87	78	78	107
17	1	91	67	63	78	68	-3.00	58	62	80	50	44	72
		100	73	75	67	57	-.65	85	60	105	82	99	88
		111	72	82			-2.07	80	85	105	73	48	107
		122	70	86	77	85	-3.00	88	90	105	92	94	107
18	1	77	78	62	70	47	-3.00	57	57	49	56	56	68
		85	88	76	71	55	-1.60	67	55	66	78	90	83
		109	79	88	73	71	-2.67	75	74	80	87	90	76
19	2	76	85	66	65	45	-2.78	60	55	75	47	94	57
		84	81	70	87	70	-.70	75	60	66	82	103	107
		96	87	86			-1.29	79	65	75	99	103	107
		108	83	92	76	75	-.87	88	71	87	99	103	107
20	2	87	90	80	81	64	-2.14	62	53	75	78	43	61
		95	93	90	64	54	-1.94	73	57	80	92	73	107
		118	65	78			-2.07	80	62	66	92	82	107
		118	79	96	68	71	-2.43	76	60	66	92	94	79
21	2	81	93	76	65	60	-1.41	68	62	62	82	69	53
		89	98	88	81	71	-1.18	80	81	62	87	78	93
		101	79	82			-1.71	83	71	70	87	86	72
		113	98	114	81	82	-1.17	88	60	105	87	90	88
22	2	81	90	74	97	80	-.88	73	55	66	63	73	61
		89	102	92	100	84	1.34	112	77	80	92	103	107
		100	94	96			-.93	91	74	80	87	74	88
		113	114	132	108	122	-.33	97	90	87	92	111	107

13	14	15	16	17	18	19	20	21	22	23	24	25
50	28	75	52	21								
65	46	55	58	34	1.5	1.2	1.0					
55	55	64	64	48	1.2	1.5	1.3					
60	73	61	61	69	1.0	1.6	2.6	1.0	1.5	14.67	10.25	24.92
55	51	45	50	19								
35	28	30	68	13	1.5	1.3	1.5					
65	42	37	72	42	1.2	1.6	1.6					
55	28	45	101	52	2.1	1.2	2.2	1.0	1.5	5.67	16.25	21.92
35	33	79	36	56								
55	46	102	68	62	1.1	1.3	1.1					
46	37	102	94	90	2.8	2.1	2.0	1.5	1.5	25.67	24.50	50.17
50	33	58	76	9								
70	55	55	68	56	3.2	3.9	2.2					
65	82	67	108	68	2.8	3.0	2.8	1.2	3.0	16.33	12.50	28.83
50	28	50	64									
46	33	55	76		1.6	1.4	1.6					
65	28	64	72	62								
70	37	64	76	67	2.4	2.3	1.8	1.0	1.5	19.00	7.50	26.50
46	37	61	61	40								
104	78	102	108	58	2.1	1.7	2.2					
82	60	75	81	88	2.1	1.8	1.8		1.9			
76	64	88	72		2.8	2.4	2.2	1.0	2.5			
38	42	61	76	71								
65	46	55	72	49								
60	60	64	94	48	3.1	2.4	3.1	2.6	2.4	26.33	18.25	44.58
46	64	52	52	35								
55	64	71	76	59	1.7	1.9	1.8					
99	78	75	64	40	2.7	4.6	3.2		4.0			
70	96	94	108	73	5.0	4.1	4.6	5.7	6.8			
65	55	75	61	55								
76	28	67	76	85	1.9	2.3	2.2					
104	60	88	81	66	2.6	3.2	2.7		3.2			
104	60	84	76	69	2.6	2.6	2.5	1.0	3.3	21.33	19.75	41.08
35	60	102	76	61								
60	91	102	68	69	2.2	2.6	2.5					
55	87	102	81	69	2.9	4.6	3.3		4.0			
88	82	102	101	72	3.0	3.2	3.2	2.8	4.0	21.67	12.00	33.67
104	82	102	58	54								
104	105	102	108	81	2.1	2.4	2.6					
104	109	102	64	69	3.2	4.6	3.5		4.9			
104	109	88	68	77	4.0	4.3	4.7	2.6	4.9			

Personnel Analysis

Section V: One Year PLDK (cont.)

Group IV: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
23	2	72	94	68	104	76	-.93	65	60	70	56	69	79
		81	109	88	81	64	-.56	77	71	94	82	86	83
		93	97	92			-.43	88	77	62	92	111	107
		101	93	96	100	107	-.87	91	68	105	73	103	107
24	2	79	84	68	97	80	-.79	72	106	80	78	56	68
		87	88	78	75	59	-1.34	78	106	66	82	90	107
		100	94	96			-3.00	71	57	40	82	69	107
		111	82	94	86	90	-1.23	88	81	80	87	94	107
25	2	82	89	74	73	57	-.88	73	68	57	70	78	107
		90	87	80	90	82	-1.99	72	90	75	87	86	79
		103	81	86			-1.71	83	85	80	92	78	88
		115	91	108	87	99	-.51	96	106	105	87	103	107
26	2	70	87	62	72	48	-2.01	58	85	49	50	65	57
		78	94	74	77	61	-1.04	70	71	66	78	65	49
		91	102	94			-.70	85	68	75	70	82	107
		103	102	108	71	69	-1.17	88	57	80	82	90	107
27	2	78	84	67	61	47	-3.00	58	55	49	59	69	46
		86	87	76	79	63	-.52	77	95	70	78	56	64
		99	87	88			-1.41	86	90	80	82	82	64
		111	86	98	76	75	-1.35	86	106	80	78	90	88
28	2	79	134	104	122	109	1.08	88	106	57	108	107	107
		88	130	114	130	121	.65	103	106	66	99	103	88
		111	149	170	150	195	.76	112	106	94	108	111	83
29	2	83	53	47	34	36	-3.00	48	40	49	42	61	53
		91	71	67	66	55	-3.00	56	55	62	50	56	46
		114	60	70	68	71	-2.67	75	60	75	63	48	107
30	2	84	90	78	95	78	-2.00	63	53	94	78	44	57
		94	94	90	92	84	-1.67	75	62	80	82	99	61
		117	92	110	93	107	.04	104	106	105	87	90	107
31	2	87	76	68	79	63	-3.00	64	53	80	63	48	49
		95	76	74	86	78	-.05	92	57	70	92	90	93
		107	78	86			-1.05	90	68	87	82	78	107
		119	79	96	70	73	-.39	97	106	87	87	69	107
32	2	91	86	80	86	78	-2.85	66	57	66	78	73	61
		98	83	84	86	78	-2.85	73	51	80	87	82	83
		122	85	106	79	87	-.69	93	62	105	87	94	107
33	2	76	93	71	112	84	-.29	76	106	80	66	56	88
		83	106	88	108	94	.25	86	95	87	92	61	107
		95	105	104			.05	93	106	80	87	82	107
		108	99	110	88	92	-.08	102	108	87	108	86	107

13	14	15	16	17	18	19	20	21	22	23	24	25
65	46	71	68	57								
65	60	84	76	40	1.9	2.0	1.9					
65	82	84	107	72	2.7	3.2	2.8		3.2			
65	91	84	81	68	3.4	3.5	3.0	3.1	3.5			
82	33	75	81	83								
104	28	84	72	61	1.6	1.5	1.8					
60	51	94	94	72	2.0	1.9	1.9		2.3			
70	82	88	94	72	2.9	2.7	2.6	1.7	2.9			
76	55	94	76	69								
50	55	79	55	52	2.0	1.9	2.9					
70	78	102	68	69	2.7	2.6	3.0		2.3			
65	87	94	68	68	3.1	3.5	3.2	2.0	2.4	19.00	22.50	41.50
35	46	61	58	79								
42	87	102	68	55	1.6	1.7	1.7					
55	82	102	108	72	2.7	2.8	2.5		3.6			
46	78	102	108	73	2.9	3.3	3.3	2.8	4.0	31.00	15.25	46.25
46	69	67	55	62								
55	69	102	88	36	1.7	1.6	1.9					
65	73	102	101	68	1.7	2.2	1.6		2.3			
60	64	102	108	69	2.7	2.8	2.2	1.7	2.6	17.33	32.75	50.08
70	91	71	64	82								
104	114	102	108	61	2.2	2.6	2.5					
104	109	102	108	91	7.1	5.8	7.9	7.9	6.0	38.33	21.00	59.33
46	33	61	44	56								
46	55	71	58	67	1.2	1.4	1.2					
50	55	102	108	67	2.7	2.1	2.6	1.7	2.2	29.67	16.75	46.42
60	69	71	58	92								
46	91	64	108	70	2.2	2.8	2.5					
46	100	102	108	72	3.7	3.7	3.7	3.9	5.0	22.67	7.00	29.67
38	55	102	61	61								
104	91	102	108	62	2.5	2.2	2.2					
65	91	102	94	67	2.7	4.9	3.5		4.7			
65	87	102	94		3.1	3.6	2.6	3.3	4.8			
82	64	75	52	68								
88	64	94	61	69	2.1	1.9	1.7					
88	82	102	72	78	3.1	3.2	3.5	2.9	3.9			
104	73	61	68	73								
82	82	75	81	65	1.9	1.6	1.5					
95	100	84	72		2.0	2.1	2.3		3.2			
88	105	84	108	90	3.1	3.2	3.5	2.6	4.6			

Personnel Analysis

Section V: One Year PLDK (cont.)

Group IV: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
34	2	80	71	59	52	44	-2.10	64	60	75	53	82	72
		87	83	74	83	66	-.65	85	85	87	70	56	83
		111	84	96	86	90	-.63	94	106	87	92	86	107
35	2	82	71	60	77	61	-2.23	62	53	53	59	61	64
		90	82	76	69	59	-1.13	80	106	87	82	69	53
		108	106	118	85	87	-.57	95	90	57	108	94	107
36	2	80	86	70	71	55	-1.60	67	60	36	73	73	64
		88	80	72	85	68	-.65	85	90	80	87	78	88
							-1.81	90	65	80	82	107	83
		113	98	114	85	97	-.99	90	90	87	82	86	107
37	2	99	80	82	62	52	-2.55	76	68	66	82	61	72
		106	88	96	80	80	-.02	103	85	105	99	73	107
		131	90	120	79	101	.16	106	90	94	92	103	107
38	2	72	103	74	97	70	.95	79	74	80	73	73	61
		81	109	88	83	66	.33	81	71	75	92	99	68
		93	99	94			-.86	83	81	80	92	65	79
		104	99	106	78	78	-.20	100	77	94	92	99	107

13	14	15	16	17	18	19	20	21	22	23	24	25
55	55	64	61	63								
76	87	102	108	51	1.5	1.4	1.7					
65	78	102	88	86	3.1	3.1	2.5	2.2	3.5	42.33	20.75	63.08
55	55	102	36	35								
70	82	94	76	66	1.8	2.4	1.9					
76	105	102	72	81	4.8	5.1	3.8	4.0	6.8	23.33	16.75	40.08
65	64	102	64	59								
104	78	102	64	63	1.9	1.9	1.9					
46	100	102	108		2.3	3.4	3.3		4.0			
95	100	104	72	86	3.1	3.9	3.6	3.8	3.6	18.00	20.25	38.25
65	64	102	68	69								
76	87	102	108	68	2.0	2.4	1.9					
65	109	102	81		4.5	4.4	3.9	3.1	5.0			
104	69	102	76	48								
46	73	102	64	44	1.5	1.5	1.7					
82	69	102	76	67	1.9	1.8	1.9		1.4			
70	96	102	81		2.8	2.4	2.0	2.2	2.2			

Personnel Analysis

Section V: One Year PLDK

Group IV: Team Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	71	75	55	63	44	-.93	65	81	75	53	61	72
		79	106	84	81	64	.58	85	106	80	78	48	107
		92	94	88			-1.24	80	85	70	92	103	88
		103	89	94	91	97	-2.73	74	65	105	78	86	83
2	1	76	91	70	95	68	-1.54	67	81	87	66	61	53
		84	94	80	118	105	.02	84	106	75	66	94	93
		96	104	102			-1.24	79	74	87	92	107	76
		108	88	98	91	97	-.39	97	95	105	87	94	93
3	1	83	83	70	87	70	-2.41	62	51	94	63	73	61
		90	92	84	83	74	-.97	82	106	105	70	94	107
		100	92	94			-1.89	81	53	105	82	90	107
		114	91	106	77	85	-.39	97	90	105	82	103	107
4	1	80	82	67	52	44	-3.00	57	57	75	59	56	46
		88	82	74	65	50	-2.26	70	68	75	87	94	61
		100	80	82			-1.79	75	57	87	73	78	76
		111	75	86	80	80	-3.00	67	62	70	70	94	53
5	1	84	86	74	89	71	-.97	72	74	94	63	86	53
		92	78	74	96	78	-1.94	73	65	87	78	69	107
		104	77	82			-1.53	85	71	80	78	94	107
		116	76	90	73	78	-1.95	81	81	87	82	107	83
6	1	79	123	96	106	91	-.17	77	65	70	73	86	88
		88	111	98	122	109	-.22	90	90	94	99	99	88
		99	109	110			1.24	112	95	80	108	90	107
		112	113	130	116	130	.76	112	102	94	78	94	107
7	1	71	69	51	65	45	-2.86	52	81	57	44	48	57
		80	82	67	89	71	-1.41	68	81	57	73	69	68
		92	81	76			-1.24	79	60	75	99	99	72
		104	80	86	83	85	-1.17	88	106	75	108	82	76
8	1	75	72	56	36	35	-3.00	45	35	32	37	40	46
		83	77	66	65	50	-2.85	59	60	62	66	65	30
		96	68	68			-3.00	58	53	80	66	52	34
		107	67	74	71	69	-3.00	66	71	62	78	78	38
9	1	79	73	60	67	52	-2.85	59	53	94	53	56	53
		87	81	72	71	55	-1.33	69	65	105	47	78	64
		99	69	71			-2.74	67	62	75	66	99	76
		110	65	74	78	78	-3.00	70	65	105	73	99	61
10	1	75	104	78	85	59	-.30	69	62	80	70	56	68
		84	112	94	91	74	.88	96	74	94	92	90	107
		95	90	96			1.08	112	106	70	99	90	107
		108	97	108	90	94	-.33	98	85	105	87	86	107
11	1	70	86	61	80	55	-1.90	58	53	105	50	48	53
		78	100	78	91	64	-2.29	63	53	75	66	44	79
		89	86	78			-3.00	72	62	70	66	56	107
		101	79	82	85	75	-1.53	85	106	75	82	69	107

13	14	15	16	17	18	19	20	21	22	23	24	25
42	46	102	50	83								
104	46	102	64	52	1.5	1.7	1.4					
46	51	102	76	55	1.6	1.6	1.9		1.4			
65	73	55	81	67	3.4	2.6	2.0	2.1	3.0	14.67	11.75	26.42
55	55	75	72	57								
76	55	102	81	63	1.8	1.7	1.7					
46	60	102	64	65	2.2	1.7	1.6		1.9			
65	87	102	88	76	3.1	2.7	2.8	2.2	2.7	31.00	20.25	51.25
60	42	75	58	58								
60	51	61	76	61	1.8	1.8	1.9					
82	64	75	94	70	2.2	1.9	2.1		2.4			
82	64	84	108	72	2.3	2.5	2.6	2.0	3.0	28.00	7.50	35.50
60	42	67	44	44								
60	42	84	68	48	1.8	1.7	1.8					
55	64	102	88	65	2.7	3.0	3.0		1.6			
68	46	88	61	60	2.8	2.6	2.6	1.0	2.2			
70	73	102	64	86								
76	46	75	61	82	1.5	1.4	1.6					
95	51	94	108	81	2.2	2.4	1.9		1.1			
76	60	75	94	80	2.7	2.7	3.3	1.9	2.0	27.00	11.25	38.25
104	69	79	55	74								
95	55	102	88	57	2.0	3.6	2.0					
104	109	102	108	84	2.7	3.4	3.1		3.2			
104	109	102	108	72	3.4	3.7	3.3	3.9	4.6	34.67	18.25	52.92
46	33	55	31	38								
76	55	58	76	58	1.4	1.2	1.6					
95	73	75	94	67	1.8	1.7	1.8		1.0			
104	87	75	108	63	1.7	1.9	3.1	1.0	1.5			
38	33	94	47	62								
33	42	102	58	34	1.4	1.5	1.5					
46	55	75	58	26	2.1	1.5	1.6		1.0			
42	46	88	94	69	2.5	1.8	2.2	1.0	1.5	4.33	19.25	23.58
60	42	71	58	65								
76	51	84	58	66	1.2	1.2	1.2					
65	33	61	68	66	1.7	1.5	1.9		1.6			
76	67	55	88	68	2.7	2.5	2.3	1.0	1.8	42.00	13.75	55.75
82	69	84	64	66								
82	69	102	108	79	1.9	2.4	2.1					
104	105	102	72	85	2.4	3.4	2.7		3.4			
104	100	79	108	72	2.7	2.9	2.8	1.0	3.0	28.00	7.50	35.50
46	60	61	64	50								
60	64	67	58	67	1.6	1.6	1.4					
65	55	67	76	48	1.7	2.2	1.9		1.9			
70	78	67	108	69	2.4	2.7	2.0	2.9	2.4	16.00	14.25	30.25

Section V: One Year PLDK cont.

Group IV: Team Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
12	1	71	78	57	26	24	-3.00	49	42	62	44	86	42
		79	95	76	75	59	-2.91	60	51	53	59	73	46
		91	79	74			-1.72	75	74	70	78	78	107
		103	73	78	81	82	-2.07	80	77	66	87	82	93
13	1	69	99	68	36	35	-1.16	63	51	53	50	48	46
		77	90	70	65	50	.52	82	65	75	82	94	76
		88	92	82			-1.51	77	74	66	87	73	57
		100	92	94	88	80	-1.53	85	68	80	92	99	79
14	1	79	78	63	63	48	-2.29	63	60	66	63	69	57
		87	84	75	75	59	-.79	74	77	57	87	94	53
		100	106	108									
		112	82	94	75	73	-.87	[illegible]	95	75	87	90	83
15	1	73	76	57	40	36	-2.75	53	68	80	44	73	38
		81	90	74	44	41	-2.10	64	62	57	63	78	72
		73	76	57									
		103	74	80	83	85	-2.49	76	77	80	78	78	76
16	1	69	87	61	43	37	-1.81	53	57	32	44	82	46
		76	84	65	61	47	-3.00	57	81	57	63	52	53
		88	84	76			-1.94	73	71	66	72	82	77
		100	84	86	92	85	-2.79	74	74	80	87	65	93
17	1	73	65	50	34	34	-2.58	54	77	49	59	52	42
		82	81	68	48	43	-2.05	63	51	53	70	61	64
		106	71	78	83	85	-2.97	72	69	80	65	66	94
18	1	77	71	57	74	50	-3.00	55	53	53	42	61	46
		84	85	73	77	61	-1.55	67	60	105	70	65	72
		96	79	78			-2.69	67	53	66	70	61	72
		108	79	88	86	90	-1.65	84	60	105	87	103	76
19	2	84	79	68	108	94	-.16	81	60	105	87	73	83
		90	99	90	100	96	-1.02	81	71	94	78	99	76
		103	99	104			-1.59	84	90	80	92	82	93
		116	89	106	91	103	.88	112	74	105	92	111	107
20	2	70	103	72	91	64	-.19	70	62	75	78	52	64
		78	133	102	95	78	1.08	88	68	94	108	86	107
		90	117	106			-.11	91	106	87	82	94	107
		102	104	108	90	94	-.02	103	95	94	92	99	107
21	2	70	84	68	87	70	-.64	67	53	66	82	73	64
		88	96	86	97	80	-1.72	75	85	75	82	61	107
		99	97	98			-.93	91	77	66	99	111	107
		111	86	98	85	87	-.93	91	74	94	87	103	107
22	2	70	67	49	18	28	-3.00	45	42	53	39	35	38
		78	77	62	52	44	-3.00	49	46	70	39	35	53
		91	68	64			-3.00	53	55	53	42	69	53
		102	68	72	70	67	-3.00	72	71	57	59	82	72

13	14	15	16	17	18	19	20	21	22	23	24	25
46	42	43	50	57								
76	42	67	72	68	1.4	1.4	1.6					
55	60	75	76	63	1.9	2.1	1.9		1.9			
76	87	71	88	70	2.4	3.0	2.3	1.4	2.5	27.00	13.75	40.75
46	64	102	76	67								
70	46	102	94	57	2.2	2.5	1.9					
50	55	102	88	64	1.9	2.2	1.9		2.9			
60	69	102	94	71	3.1	3.5	2.4	1.5	3.3			
46	28	102	64	73								
70	55	102	72	73	2.5	3.1	3.2					
				90	3.3	4.6	3.0		2.8			
70	87	102	94	89	3.2	3.5	3.2	2.4	4.8	46.33	10.75	57.08
50	42	45	36	51								
60	46	61	72	61	1.8	1.8	2.0					
				66	2.2	2.1	2.0		2.0			
95	69	67	81	68	2.5	2.7	2.6	1.0	2.3	37.33	9.00	46.33
76	33	61	50									
46	51	64	36		1.2	1.2	1.3					
88	73	87	51		1.9	1.7	1.5		1.2			
76	60	58	88	79	1.7	2.3	2.0	1.4	1.5			
55	28	52	55									
70	46	67	94		1.3	1.4	1.3					
83	71	78	62		1.9	1.6	1.9	1.0	1.5	4.33	7.75	12.08
55	37	75	68	32								
55	55	67	68	44	1.3	1.4	1.5					
50	42	102	68	46	1.9	3.4						
42	78	102	76	52	2.7	3.2	2.4	1.4	4.8	3.00	10.50	13.50
65	109	102	68	64								
76	105	88	61	67	2.5	2.6	2.0					
82	109	67	72	74	2.8	2.9	2.8		3.0			
104	109	102	108	72	3.1	2.8	4.3	2.1	3.5	21.33	11.75	33.08
60	78	102	58	45								
60	78	102	68	66	3.2	2.8	2.2					
70	96	102	68	78	2.9	4.9	3.3		4.7			
60	114	102	81	83	4.1	4.3	4.7	4.0	6.8	46.33	16.00	62.33
55	55	75	88	87								
76	73	52	68	67	2.5	2.1	2.0					
95	109	61	88	63	2.7	2.6	2.8		3.2			
65	100	94	76	71	3.1	3.5	3.9	3.4	3.1	24.67	17.00	41.67
50	37	55	47	65								
38	46	52	55	38	1.5	1.4	1.5					
30	46	58	64	34	1.4	1.2	1.6		1.0			
46	31	52	68	68	1.9	2.7	2.5	1.0	1.5			

Section V: One Year PLDK (cont.)

Group IV: Team Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
23	2	68	87	60	61	44	-2.01	58	38	70	50	61	53
		77	93	72	82	57	-.67	73	57	87	70	86	88
		89	83	76			-2.58	68	53	70	70	56	72
		101	91	94	81	71	-2.19	79	68	105	82	103	76
24	2	86	78	69	23	30	-3.00	54	46	40	66	40	46
		94	75	73	67	57	-1.67	75	57	70	56	65	76
		106	70	76			-3.00	71	60	75	66	65	72
		118	68	82	76	82	-3.00	80	90	87	73	103	72
25	2	80	95	77	100	84	-.48	74	68	80	73	44	72
		87	117	102	108	94	.54	101	90	105	92	82	107
		99	115	116			.22	107	106	94	87	94	107
		113	112	130	91	97	1.72	112	106	105	99	111	107
26	2	70	94	66	61	44	-.64	67	57	87	70	90	68
		78	87	69	97	80	.20	80	90	75	78	90	61
		90	101	92			-1.29	79	65	75	70	78	93
		103	104	110	90	94	-.02	103	77	105	92	99	107
27	2	74	76	58	43	37	-1.61	60	46	70	73	73	49
		82	102	84	77	61	-.29	72	55	70	73	73	88
		93	88	84			-2.10	72	60	66	73	78	107
		106	88	96	80	80	-1.77	81	74	75	87	90	107
28	2	73	88	65	87	61	.04	72	106	87	59	86	53
		81	98	80	87	70	.64	84	57	87	78	103	107
		98	88	88			-1.51	77	65	70	82	99	88
		106	84	92	83	85	-2.31	78	60	94	78	103	73
29	2	76	80	62	91	64	-.23	76	71	70	73	73	53
		85	95	82	104	76	1.64	112	85	70	99	86	107
		98	83	84									
		109	89	100	81	82	-.27	99	106	94	78	82	107
30	2	75	84	64	93	66	-.19	70	55	57	82	69	64
		83	98	82	104	89	-1.10	71	71	44	82	27	83
		108	106	118	103	113	.64	112	106	94	108	99	107
31	2	97	69	69	60	50	-3.00	65	55	80	78	65	64
		105	74	80	67	64	-1.95	80	65	105	82	94	76
		117	82	98			-1.29	87	65	105	92	94	88
		129	80	104	80	103	-.20	100	95	105	99	90	76
32	2	70	107	74	102	74	-.64	67	44	80	92	48	64
		78	103	80	95	68	.45	82	74	105	78	56	107
		102	104	108	97	82	-.02	102	95	105	108	92	107
33	2	76	91	70	78	54	-1.91	65	77	62	66	69	57
		84	102	86	79	63	-.34	79	85	70	82	90	79
		108	99	110	105	116	-1.95	81	60	87	92	69	93

13	14	15	16	17	18	19	20	21	22	23	24	25
55	60	75	68	63								
50	28	102	76	53	1.2	1.3	1.3					
50	69	102	68	59	1.7	1.4	1.8		1.9			
50	78	79	81	71	2.6	2.9	3.4	2.2	3.8	25.67	10.00	35.67
35	51	102	31	73								
95	78	102	58	69	1.0	1.2	1.1					
60	64	102	64	57	1.2	1.7	1.6		1.0			
76	51	84	101	72	2.2	2.6	2.0	1.0	1.5	21.00	5.75	26.75
88	87	102	64	73								
104	69	102	108	72	3.2	3.9	3.0					
70	100	102	108	85	3.2	4.6	4.7		4.9			
88	114	102	108	78	4.7	5.3	4.4	5.3	5.7	47.00	20.00	67.00
42	42	67	88	56								
76	87	84	88	68	2.1	2.8	2.1					
70	78	94	108	78	2.4	3.6	3.3		4.0			
88	96	104	108	66	3.8	3.9	3.9	4.6	5.3	44.67	13.25	57.92
70	60	79	36	49								
104	82	79	55	75	1.6	1.5	1.7					
65	42	79	76	73	2.2	3.2	2.8		2.5			
60	64	106	81	89	3.0	3.5	2.7	2.9	3.6	41.33	12.75	54.08
70	60	55	101	55								
88	100	71	64	63	2.4	2.4	1.8					
88	60	79	72	74	2.8	3.0	3.2		3.2			
60	73	94	64	79	2.8	2.9	2.6	2.9	3.8	27.67	14.75	42.42
55	91	102	81	66								
104	91	102	108	68	1.6	1.6	1.6					
				67	2.1	2.3	1.9		2.5			
88	100	102	81	80	2.8	2.5	2.8	2.4	3.0	42.67	14.00	56.67
46	55	102	68	43								
76	82	102	72	85	2.4	2.8	2.1					
82	100	102	76	89	4.7	5.1	4.5	2.8	4.4			
50	64	75	58									
76	55	88	101		1.6	1.3	1.7					
82	91	102	72	54	1.8	2.2	2.0		2.3			
95	91	102	108	71	3.1	3.0	3.3	3.7	3.5			
76	51	102	58	82								
65	60	88	72	77	1.9	2.1	1.9					
76	72	102	99	73	3.0	3.5	2.2	2.2	4.4			
50	46	71	76	52								
55	73	94	88	67	2.7	3.1	2.9					
65	82	94	94	82	3.1	3.9	4.4	3.7	4.7	41.33	22.50	63.83

Section V: One Year PLDK (cont.)

Group IV: Team Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
34	2	79	80	65	73	57	-2.16	73	57	75	59	73	57
		88	82	74	93	76	-1.51	77	60	105	87	86	107
		112	85	98	172	216	-1.95	81	85	94	95	86	79
35	2	73	93	68	91	64	-1.04	64	60	62	66	56	53
		81	101	82	102	87	-1.57	93	68	94	87	90	107
		103	95	100	86	90	-1.41	86	68	75	82	99	107
36	2	92	78	74	69	59	-2.37	69	62	66	66	48	64
		99	85	86	78	68	-1.02	81	60	70	82	86	107
		122	76	94	77	85	.04	104	106	105	92	78	107
37	2	74	91	68	87	61	-.37	68	81	75	53	78	83
		82	94	78	85	68	-1.01	72	62	94	70	78	79
		105	78	84									
		115	83	98	67	69	-.69	93	81	94	108	111	107
38	2	77	94	73	78	54	-2.04	64	74	53	70	82	64
		85	93	80	91	74	-1.42	68	60	62	87	86	83
		110	83	94	80	80	-.75	93	106	87	82	99	107

13	14	15	16	17	18	19	20	21	22	23	24	25
50	55	75	68	84								
82	46	75	76	83	1.6	1.9	1.3					
76	73	75	78	85	2.8	3.3	3.2	3.1	4.0	45.33	7.75	53.08
60	46	102	36	63								
70	73	102	72	64	1.3	1.4	1.3					
60	87	102	72	91	2.6	2.2	1.8	2.6	2.3	48.67	11.25	59.92
76	55	102	88	48								
65	60	102	68	73	1.9	2.5	2.2					
70	82	102	101	71	2.7	2.3	2.5	1.4	2.2			
76	69	55	55	70								
76	78	64	68	68	1.5	1.5	2.3					
				83								
82	87	67	72	83	2.5	2.5	2.7	2.1	1.8			
42	37	84	76	64								
46	46	75	72	85	1.2	1.5	2.0					
76	69	94	76	85	2.4	2.5	2.3	1.5	2.7			

Personnel Analysis

Section VI: Two Year PLDK

Group III: Team Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	78	87	69	77	61	.39	81	74	70	78	56	107
		86	109	94	93	76	.25	86	106	49	99	61	107
		99	107	108			.58	112	90	75	108	86	107
		110	103	116	114	116	-.02	103	90	105	108	94	93
2	1	71	102	72	72	48	-1.67	60	60	75	39	73	31
		79	87	70	85	68	-1.75	66	53	87	59	69	57
		92	83	78			-1.56	76	71	87	82	78	107
		102	88	92	83	85	-1.77	82	85	105	78	61	107
3	1	72	80	59	100	78	-1.21	63	57	70	70	69	61
		81	93	76	112	98	-.60	73	77	94	87	48	72
		93	97	92			-.38	88	106	75	99	111	79
		104	94	100	103	113	-.93	91	106	87	82	103	79
4	1	73	71	54	43	37	-2.98	51	53	57	39	56	53
		81	85	70	73	57	-2.91	59	51	87	47	52	64
		94	79	76			-2.80	66	53	80	66	78	93
		104	65	70	75	73	-1.85	73	77	94	78	86	64
5	1	82	93	77	106	91	-.20	82	106	105	87	52	79
		90	94	86	102	98	.70	104	106	80	99	94	107
		103	106	112			-.93	91	90	105	108	56	107
		114	106	120	85	97	.34	112	106	105	92	100	107
6	1	77	71	57	87	61	-3.00	57	95	75	42	52	42
		85	79	69	100	84	-2.23	62	62	87	66	61	38
		98	86	86			-1.67	75	71	87	70	86	76
		108	83	92	81	82	-1.53	85	106	105	92	107	61
7	2	76	77	60	57	54	-3.00	57	55	49	66	82	57
		84	85	73	63	48	-1.91	64	60	49	63	86	79
		96	83	82			-1.29	79	57	75	87	103	107
		107	84	92	70	67	-2.01	80	95	80	78	94	88
8	2	72	72	54	47	38	-3.00	40	42	32	32	61	38
		80	81	66	59	46	-2.04	64	74	53	56	86	68
		93	74	71			-3.00	61	53	57	56	78	64
		103	64	68	71	69	-3.00	60	65	57	70	78	57
9	2	76	77	60	95	68	-2.78	60	51	62	66	69	38
		85	93	80	89	71	-.56	77	74	66	82	103	68
		98	104	104			-.81	84	85	57	108	78	102
		106	92	102	91	97	-1.95	81	90	94	92	82	83
10	2	87	73	66	61	47	-2.50	59	59	70	44	69	53
		95	76	74	81	71	-2.80	66	55	66	73	86	64
		108	66	74			-2.55	76	106	87	82	44	88
		119	73	88	70	73	-2.19	79	106	80	82	69	68
11	2	74	93	69	102	74	.04	72	62	66	70	82	68
		82	107	88	87	70	-.29	80	77	87	87	90	68
		95	99	96			.70	105	90	70	92	86	107
		105	91	98	80	80	-.27	99	95	70	99	86	107

13	14	15	16	17	18	19	20	21	22	23	24	25
104	73	75	94	74								
104	82	79	72	82	2.2	2.8	1.9					
104	105	84	108	93	3.7	3.9	3.5		4.4			
88	114	94	101	77	4.7	4.6	3.8	4.6	6.0	29.00	14.00	43.00
65	46	94	64	47								
82	73	71	61	62	1.5	1.7	1.7					
76	28	102	81	79	1.9	1.7	2.1		1.3			
95	69	67	81	78	2.3	2.1	2.5	1.0	1.8	23.33	24.00	47.33
82	51	58	58	46								
95	69	64	64	65	1.6	1.4	1.9					
104	87	75	72	55	1.8	2.2	1.9		2.4			
104	96	75	72	74	3.0	2.4	3.1	2.2	2.6			
70	42	47	50	60								
82	42	58	61	63	1.4	1.5	1.7					
88	51	75	40	70	1.9	1.9	2.1		2.2			
76	55	61	88	72	2.7	2.9	1.8	1.0	1.8	32.00	17.50	49.50
65	82	102	55	59								
88	60	102	108	63	1.6	1.4	1.9					
82	100	102	72	92	1.9	2.2	1.8		2.1			
88	91	102	108	90	2.9	2.4	2.4	1.5	2.7	38.67	18.75	57.42
65	37	52	50	35								
70	46	64	61	58	1.6	1.7	2.1					
95	64	79	68	70	2.1	3.2	2.2		3.8			
70	82	84	64	63	3.5	3.9	2.6	2.2	3.9	20.33	29.50	49.83
46	28	67	52	32								
46	51	71	68	59	1.6	1.5	1.9					
46	51	102	72	77	2.4	3.0	3.0		2.3			
42	69	94	88	90	3.1	2.5	2.8	1.0	2.7	14.67	14.75	29.42
38	28	45	52	42								
46	37	67	76	62	1.4	1.4	1.7					
50	28	102	61	55	1.5	1.6	1.8		2.4			
50	28	55	76	58	2.9	2.7	2.7	1.0	2.9	16.00	13.00	29.00
38	64	94	58	17								
55	78	102	72	64	1.8	1.7	2.0					
50	82	102	72	72	3.2	4.3	3.4		4.7			
50	91	67	88	75	3.7	4.0	4.2	4.0	4.9	17.00	16.75	33.75
42	46	71	72	26								
42	69	67	81	45	1.3	1.4	1.6					
44	87	67	81	60	1.7	1.9	1.7		2.1			
46	69	84	108	67	2.3	2.4	3.1	1.4	2.2	18.67	16.25	34.92
95	64	102	52	60								
104	78	88	61	76	1.7	1.4	1.8					
104	109	102	81	90	1.8	2.1	2.2		2.1			
76	114	102	108	84	2.2	2.5	2.6	1.2	2.3			

Personnel Analysis

Section VI: Two Year PLDK (cont.)

Group III: Team Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
12	2	74	55	44	36	35	-3.00	51	46	53	39	56	49
		82	76	64	91	74	-2.09	63	69	94	70	69	53
		93	87	83			-2.74	67	60	62	56	73	88
		106	81	88	68	65	-3.00	68	62	62	70	78	72

13	14	15	16	17	18	19	20	21	22	23	24	25
42	46	64	52	70								
76	33	50	64	84	1.3	1.2	1.1					
82	64	75	55	80	1.7	2.6	1.9		2.4			
65	64	75	64	86	2.7	4.1	3.1	2.8	4.9	21.33	16.25	37.58

Personnel Analysis

Section VI: Two Year PLDK

Group IV: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	77	96	74	102	74	-.17	77	95	80	70	82	76
		86	106	92	108	94	1.42	107	106	105	82	90	107
		97	114	112			.59	102	95	105	92	82	107
		108	105	116	80	80	.46	112	95	80	99	86	107
2	1	75	105	86	108	94	-1.23	69	57	105	63	61	107
		84	93	86	90	82	.34	88	68	66	82	78	107
		96	92	90			.59	102	106	87	92	94	107
		107	106	116	91	97	-.14	101	71	105	99	73	107
3	1	88	84	76	97	80	-2.58	68	65	94	66	65	68
		95	88	86	98	94	.48	100	77	105	99	78	107
		107	91	100			-.57	95	71	105	87	86	107
		120	96	118	84	94	.46	112	106	105	99	99	107
4	1	79	93	74	97	80	-1.91	65	55	70	73	78	83
		88	96	86	104	89	-.97	82	65	75	82	86	107
		106	84	92			-.57	95	106	80	87	78	107
		118	79	96	79	87	-1.05	90	53	105	78	73	107
5	1	83	79	66	75	59	-2.27	61	65	49	56	61	72
		92	83	78	74	84	-2.74	67	74	57	70	40	68
		103	75	80			-2.91	73	68	49	70	44	102
		115	75	88	73	78	-2.13	79	85	87	82	90	68
6	1	91	80	75	83	74	-1.51	77	106	87	92	82	68
		99	105	106	100	96	.43	99	106	87	73	111	107
		111	102	116			.82	112	90	94	108	107	107
		123	103	130	112	136	1.48	112	106	105	99	107	109
7	2	81	70	59	45	42	-3.00	112	38	53	42	69	38
		89	83	76	61	47	-1.99	51	95	80	59	61	107
		90	73	68			-1.61	73	65	66	70	90	107
		111	70	80	80	80	-1.47	76	60	80	78	111	107
8	2	69	84	59	72	48	-2.29	56	55	66	39	78	42
		78	89	70	80	55	-1.66	66	57	75	70	99	53
		100	74	76			-2.43	77	60	104	78	86	76
		90	103	94	91	73	-1.08	81	57	87	87	90	107
9	2	79	90	72	36	36	-2.41	62	53	44	59	86	38
		88	99	88	73	57	-1.55	67	62	62	78	90	72
		99	97	98			-2.13	79	65	57	82	99	79
		111	95	108	81	82	-1.47	85	77	70	78	90	107
10	2	77	90	70	65	45	-1.79	66	60	66	70	52	83
		86	99	86	93	76	.79	94	51	70	92	73	107
		98	92	92			.05	93	95	80	87	86	107
		108	94	104	75	73	-.60	112	106	87	92	99	107
11	2	75	68	53	26	32	-3.00	51	38	80	30	65	53
		84	76	66	57	45	-1.33	69	74	49	56	52	83
		95	73	72			-2.53	69	57	57	73	69	107
		107	86	94	60	56	-2.97	72	65	70	70	73	107

13	14	15	16	17	18	19	20	21	22	23	24	25
42	73	102	58	89								
70	91	102	108	66	2.2	2.3	2.5					
88	96	102	72	92	3.3	3.4	3.7					
70	114	102	88	91	4.1	3.7	4.0	3.9	4.8	36.00	23.25	59.25
50	46	102	68	60								
104	37	102	108	66	1.9	2.2	2.6					
82	96	102	88	91	1.7	2.0	2.1		2.3			
60	107	102	108	72	2.9	2.5	2.6	1.1	2.2	36.67	15.00	51.67
70	64	67	64	66								
95	73	84	88	70	1.7	1.7	2.0					
88	96	102	88	68	1.9	1.8	2.1		1.9			
76	91	102	108	72	3.1	2.3	3.3	1.4	2.0	59.00	21.25	80.25
55	46	55	72	50								
104	55	102	76	83	1.8	1.8	1.7					
104	87	102	68	77	1.8	1.6	1.9		2.3			
104	96	102	101	88	3.5	2.7	2.0	2.8	2.0	32.67	16.25	48.92
76	28	75	61	76								
88	51	94	64	63	1.8	2.1	1.8					
104	78	94	68	65	2.0	2.4	2.7		3.0			
76	64	102	68	74	2.8	2.7	3.1	2.2	2.9	52.00	11.25	63.25
76	78	64	58	66								
95	73	71	108	90	1.7	1.6	1.7					
104	105	71	108	69	2.1	2.2	1.9		2.3			
104	91	88	108	92	2.4	2.6	3.4	3.1	3.1	44.67	14.25	58.92
42	37	102	47	81								
70	37	94	76	83	2.0	1.8	2.3					
70	55	102	64	91	2.6	2.8	2.1		2.3			
60	51	102	76	91	3.0	2.6	3.0	1.2	3.5	26.67	17.25	43.92
60	33	61	68	74								
70	28	75	76	57	1.9	2.2	1.9					
104	78	84	68	77	1.9	2.6	2.0		2.3			
88	64	79	76	84	2.5	3.5	2.7	1.2	3.1			
65	46	75	101	74								
50	33	88	68	83	1.9	2.5	2.5					
76	64	94	108	87	2.7	4.3	3.3		3.8			
55	91	102	108	91	3.1	3.2	3.3	3.1	4.6	17.67	18.75	36.42
65	55	71	68	91								
104	87	102	108	73	1.8	1.9	2.2					
82	78	102	88	91	2.2	2.5	2.8		3.6			
82	114	102	101	86	3.0	3.2	2.8	3.1	3.5	37.00	17.75	54.75
30	55	84	44	45								
55	82	102	64	33	2.2	1.8	2.2					
42	60	102	55	71	2.2	3.4	2.0		3.2			
38	69	102	68	90	3.1	3.2	3.1	1.4	4.6	27.33	11.75	39.08

Personnel Analysis

Section VI: Two Year PLDK (cont.)

Group IV: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
12	2	90	77	71	88	80	-2.74	67	57	75	70	52	107
		98	77	78	86	78	-1.77	74	77	66	78	82	83
		110	69	78			-1.83	82	71	80	82	99	88
		122	74	92	81	90	-1.05	90	106	105	87	90	79

13	14	15	16	17	18	19	20	21	22	23	24	25
88	60	52	68	65								
104	33	75	81	63	1.7	1.8	1.4					
70	73	75	108	74	2.1	2.4	2.2		2.6			
55	100	79	108	86	2.0	3.1	3.6	2.4	2.9			

Personnel Analysis

Section VII: Three Year PLDK

Group IV: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	73	111	80	119	91	.95	79	90	87	78	82	107
		81	111	90	110	96	-.16	81	106	94	78	56	68
		93	102	96			.05	93	95	105	82	86	107
		105	101	106	114	128	.70	112	106	105	99	111	107
2	1	85	90	78	85	68	-.88	73	71	105	87	56	64
		92	94	88	86	78	-.43	88	90	105	108	86	93
		103	97	102			.04	104	106	105	108	82	107
		116	92	110	102	124	.46	112	106	105	108	99	107
3	1	72	153	106	123	96	.95	86	85	94	92	82	107
		80	162	126	122	109	2.88	112	106	105	108	86	107
		92	134	124			1.40	112	106	94	108	107	107
		104	149	158	121	141	1.30	112	106	105	108	103	107
4	1	79	109	86	106	91	.33	81	85	80	87	65	107
		84	112	94	112	98	-.16	81	95	94	87	52	107
		99	111	112			-.08	102	106	87	99	90	107
		111	114	130	113	127	-.52	112	106	105	108	74	107
5	1	71	88	63	100	71	-.70	66	49	62	63	90	79
		78	100	78	110	82	.02	78	68	57	92	86	107
		92	114	106			.91	109	90	80	82	111	107
		103	101	108	86	90	.40	112	106	66	108	78	107
6	1	78	86	68	83	66	-3.00	55	55	66	53	56	53
		86	82	72	97	80	-1.06	72	71	75	78	61	88
		99	78	80			.11	94	90	105	87	90	107
		110	81	92	105	116	-.14	101	95	70	92	86	107
7	1	80	94	76	97	70	-.54	75	62	105	78	86	83
		87	105	92	99	82	.16	85	62	94	82	78	107
		99	93	94			-.27	99	74	105	92	99	107
		110	97	110	106	120	.68	112	106	105	108	111	107
8	1	73	111	80	106	76	.95	79	77	94	92	69	83
		80	127	100	109	91	2.45	105	106	94	99	90	107
		92	125	116			1.24	112	95	105	108	99	107
		104	130	138	123	124	1.36	112	85	105	108	107	107
9	1	80	97	78	114	100	.89	86	106	80	78	90	61
		88	94	84	102	87	.38	98	106	105	87	69	76
		102	90	94			.40	112	106	105	92	94	107
		100	94	96	105	116	.16	106	106	94	108	78	107
10	2	77	93	72	80	55	-2.10	64	46	105	70	73	53
		86	92	80	95	68	-.61	76	106	105	70	90	42
		98	98	98			-.43	88	65	94	108	94	107
		110	97	110	85	87	-.39	98	106	87	108	91	107
11	2	70	113	78	95	68	-.36	69	57	53	63	65	107
		78	119	92	95	78	-.29	76	68	57	82	82	107
		91	118	108			-.43	88	85	70	99	78	107
		102	108	112	86	90	.28	109	106	94	108	94	107

13	14	15	16	17	18	19	20	21	22	23	24	25
88	91	75	47	84								
104	78	102	72	61	1.7	1.5	1.5					
95	100	79	68	75	1.5	2.0	1.9		1.9			
104	100	102	81	79	2.7	2.8	3.2	2.2	2.0	32.00	35.50	67.50
55	64	102	72	60								
82	73	84	88	64	1.6	1.8	1.5					
104	91	102	81	70	2.0	2.7	2.2		2.4			
104	91	102	108	73	3.7	3.2	3.7	3.5	2.9	32.67	19.00	51.67
82	96	71	72	65								
104	82	102	94	65	1.4	1.6	1.7					
104	100	102	81	80	2.2	2.2	3.0		2.4			
104	109	102	76	87	2.8	2.9	3.5	3.5	2.7	49.00	22.75	71.75
104	64	102	52	63								
95	96	102	50	62	1.7	1.4	1.5					
95	100	84	72	63	3.1	2.4	3.5		2.6			
82	114	102	68	80	4.7	5.1	4.7	4.1	3.5	39.33	24.25	63.58
65	69	94	50	74								
76	73	75	61	73	1.7	1.6	1.5					
104	91	102	94	82	2.7	2.1	2.2		2.5			
104	91	84	108	91	3.2	3.5	3.7	3.2	4.0	54.33	26.00	80.33
42	55	45	64	43								
60	60	67	94	75	1.6	1.5	1.6					
104	87	75	76	72	3.0	2.5	2.6		2.7			
82	105	88	76	92	3.5	3.2	4.0	3.2	3.3	36.67	13.25	49.92
88	73	71	50	68								
104	91	84	72	69	1.9	1.8	1.8					
95	96	84	88	90	3.3	1.8	4.4		3.4			
104	105	102	108	91	4.7	4.3	4.9	5.3	5.1	51.67	30.50	82.17
95	91	71	61	53								
95	82	102	76	64	1.7	1.7	1.7					
104	96	102	81	59	3.1	3.0	3.4		3.8			
104	105	102	108	88	3.8	4.3	5.1	4.6	3.8	42.33	21.75	64.08
104	73	102	64	76								
65	100	102	108	75	1.8	1.8	2.0					
70	87	102	76		3.0	4.6	2.8		4.7			
82	76	102	108	80	4.1	4.7	4.3	3.3	5.3			
50	64	61	76	40								
70	82	71	76	48	1.9	1.5	2.0					
82	87	71	108	63	2.8	3.4	3.4		2.9			
88	96	79	101	93	3.7	3.9	3.4	4.6	3.5	21.33	26.50	47.83
95	64	75	61	56								
55	73	71	72	68	1.7	1.7	1.6					
65	82	102	68	74	2.3	2.4	2.5		2.9			
70	100	102	88	92	2.7	2.7	3.4	5.1	3.0	30.33	13.50	43.83

Personnel Analysis

Section VII: Three Year PLDK (cont.)

Group IV: Regular Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
12	2	71	99	70	72	48	-.30	69	65	94	66	94	72
		79	109	86	77	61	.83	85	65	80	82	94	107
		93	119	110			-.27	90	106	87	82	107	107
		103	110	114	88	102	-.87	91	106	94	87	90	93
13	2	77	94	73	104	76	-.54	74	60	87	87	65	83
		85	105	90	100	84	.38	88	74	105	92	69	107
		98	106	106			.16	106	106	87	108	73	107
		97	98	98	103	113	1.48	112	106	80	99	103	107
14	2	71	86	62	80	55	-.70	66	60	75	59	52	83
		79	95	76	91	74	-.36	75	71	75	78	78	83
		91	104	96			.54	101	65	105	82	99	107
		102	96	100	99	94	1.56	112	90	105	99	103	107

13	14	15	16	17	18	19	20	21	22	23	24	25
35	42	102	68	54								
65	82	79	94	73	1.7	2.2	1.7					
60	64	84	88	74	2.8	3.2	3.3		3.8			
70	100	84	108	91	3.8	3.5	3.8	4.0	4.7	53.67	22.75	76.42
82	69	94	61	72								
104	69	84	81	77	1.7	1.9	1.7					
104	73	102	101	82	3.3	2.9	3.4		3.8			
95	91	102	108	92	3.4	3.6	3.8	4.0	4.0	41.00	20.75	61.75
70	55	94	58	84								
65	55	102	68	61	1.7	1.8	1.7					
104	78	102	81	73	2.2	2.6	2.5		2.5			
88	91	102	101	77	2.9	3.5	3.9	2.8	2.7	46.00	21.50	67.50

Personnel Analysis

Section VII: Three Year PLDK

Group III: Team Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
1	1	85	63	56	33	35	-3.00	40	33	42	34	35	34
		93	68	66	57	47	-3.00	51	49	36	59	48	68
		106	73	80			-3.00	60	55	66	63	56	79
		116	66	78	73	78	-3.00	61	53	62	56	65	88
2	1	84	65	52	59	34	-3.00	54	49	66	39	61	46
		91	84	78	79	70	-2.58	68	57	36	70	101	72
		104	70	75			-3.00	66	60	44	66	69	64
		115	80	94	76	82	-1.47	85	62	80	87	61	107
3	1	69	86	60	47	38	-2.41	55	46	70	47	82	68
		77	101	78	78	54	-3.00	56	62	80	59	78	68
		89	88	80			-2.26	70	57	70	70	82	83
		100	78	80	90	82	-2.11	78	106	70	70	94	72
4	1	74	84	63	76	52	-.87	65	53	94	63	52	53
		82	105	86	95	78	-.70	75	106	75	70	65	107
		94	92	88			-.86	83	106	75	99	56	107
		106	84	92	83	88	-1.71	83	85	70	80	78	93
5	1	74	82	62	76	52	-1.55	61	51	66	59	65	49
		82	89	74	87	70	-.48	74	53	75	82	94	88
		94	105	100			.43	99	81	94	99	82	107
		105	93	100	78	78	-.39	98	100	105	82	86	83
6	1	77	47	40	43	37	-3.00	35	29	40	34	52	31
		85	60	54	69	54	-3.00	48	51	62	42	56	42
		109	60	61			-3.00	59	57	105	53	90	57
		109	66	74	83	85	-3.00	60	60	105	63	48	53
7	1	77	96	74	65	50	-.79	72	85	80	70	90	61
		85	84	72	77	61	-.38	79	57	70	78	52	68
		99	94	94			-1.56	76	53	80	82	56	107
		109	95	106	81	82	-.08	90	74	105	87	99	107
8	1	88	73	66	83	66	-3.00	56	60	75	66	48	31
		96	92	90	85	76	-2.10	72	65	75	108	65	83
		108	90	100			-1.23	88	90	94	87	86	107
		120	97	120	79	87	-.58	112	95	105	108	89	107
9	1	77	84	66	108	80	-1.60	67	57	75	73	56	76
		85	85	74	102	87	.52	90	62	105	92	73	107
		97	97	96			-.16	91	71	94	108	61	107
		109	100	112	105	116	-.02	103	65	87	108	86	107
10	2	76	87	67	70	47	-3.00	55	55	44	53	94	53
		84	83	71	102	87	-1.96	63	60	70	59	69	76
		108	77	86			-3.00	68	74	66	70	56	88
		120	77	94	73	78	-2.79	74	62	87	82	94	64
11	2	70	81	58	85	59	-1.67	60	53	105	59	65	42
		78	83	66	77	61	-1.48	67	55	87	66	86	107
		91	90	84			-1.40	78	77	105	73	65	107
		102	96	100	95	101	-1.47	85	85	70	82	90	107

13	14	15	16	17	18	19	20	21	22	23	24	25
46	33	50	47	22								
50	28	55	58	63	1.3	1.3	1.6					
50	37	58	68	56	1.8	1.4	1.7		1.6			
55	51	43	94	68	2.7	2.7	2.8	1.0	2.0	11.67	17.00	28.67
76	33	61	64	51								
88	37	88	68	63	1.9	2.2	2.2					
70	55	94	68	71	2.3	2.6	2.2		1.9			
104	55	102	68	75	2.9	2.4	2.6	1.2	2.6	35.33	19.00	54.33
38	42	64	44	67								
46	46	94	31	58	1.0	1.0	1.0					
60	51	102	68	69	1.8	1.5	1.9		1.4			
70	51	102	61	75	1.3	1.4	1.7	1.0	3.1	23.33	9.50	32.83
55	55	102	72	44								
70	55	75	68	88	1.3	1.5	1.6					
60	64	102	64	76	1.9	2.0	2.1		1.3			
82	82	102	69	80	2.7	3.0	2.5	1.0	1.5	28.00	21.00	49.00
50	51	94	68	93								
82	60	102	72	77	1.5	1.4	1.5					
95	96	94	108	88	1.8	1.7	1.6		2.0			
82	96	102	94	89	2.5	2.6	2.0	2.1	2.9	40.67	23.25	63.92
42	28	41	31	72								
60	28	43	52	63								
50	42	45	55	51	1.5	1.1	1.6		1.0			
76	37	47	68	69	1.8	2.1	1.6	1.1	1.5	7.00	8.50	15.50
88	37	75	72	44								
82	55	102	61	55	1.4	1.6	1.5					
104	64	102	72	72	2.2	1.9	1.9		1.9			
95	91	102	88	71	2.1	2.4	2.2	2.1	2.6	21.67	22.25	43.92
42	37	71	61	40								
50	37	102	72	67	2.0	2.8	2.5					
65	78	88	81	91	2.2	2.8	2.5		2.2			
104	82	102	108	89	3.8	3.2	3.2	3.1	2.7	47.00	17.75	64.75
70	73	64	68	85								
104	82	102	81	69	1.6	2.1	2.0					
104	105	84	72	75	3.0	3.9	2.4					
104	105	102	101	78	3.7	3.9	3.1	3.9	3.9	57.33	22.25	79.58
30	37	61	64	72								
60	37	61	76	65	1.9	2.4	2.2					
65	78	55	68	74	2.2	2.6	2.4		2.0			
70	73	64	88	64	3.0	2.2	3.5	2.6	2.7	41.00	17.00	58.00
76	51	61	52	42								
95	42	50	55	60	1.5	1.4	1.6					
104	51	67	72	75	1.8	1.7	1.9		1.6			
104	87	79	64	89	2.7	2.4	2.7	1.7	2.0	40.33	13.25	53.58

Personnel Analysis

Section VII: Three Year PLDK (cont.)

Group III: Team Teaching

Subject / Variables

	Sex	1	2	3	4	5	6	7	8	9	10	11	12
12	2	75	77	59	55	41	-2.95	58	62	75	59	69	53
		83	89	75	79	63	-.07	82	62	66	78	86	107
		95	91	88			-1.34	78	55	94	73	44	107
		106	94	102	86	90	-.51	97	95	87	99	82	107
13	2	76	80	62	47	38	-1.61	60	49	70	70	44	64
		84	81	70	67	52	-.70	75	74	80	78	78	83
		95	76	74			-1.77	74	55	80	82	78	72
		107	86	94	80	80	-1.65	84	65	75	78	73	107
14	2	75	71	55	59	43	-2.22	63	81	53	53	44	64
		83	95	80	44	41	-1.24	70	74	70	66	86	93
		96	94	92			-.97	82	81	80	82	78	107
		106	84	92	78	78	-1.89	81	90	66	103	36	107

13	14	15	16	17	18	19	20	21	22	23	24	25
46	37	64	50	65								
60	73	102	81	83	1.8	1.9	1.9					
60	82	84	108	76	2.5	3.2	2.5		2.5			
70	96	102	88	82	3.4	3.7	3.3	3.2	4.4	51.00	19.75	70.75
50	60	84	55	91								
65	82	84	61	57	1.1	1.1	1.6					
88	82	102	61	80	2.2	1.7	1.9		1.0			
82	82	102	101	82	1.7	2.5	2.3	1.4	1.5			
82	69	50	76	57								
76	51	55	68	65	1.6	1.6	1.7					
95	78	64	88	85	1.8	2.6	2.4		2.3			
104	100	90	88	88	2.7	2.9	3.6	3.2	3.5	42.00	19.50	61.50